As we all know, numbers can be deceiving. They tend to look solid, strong and trustworthy, but what do they actually mean? An unwary researcher can be lured away easily by numbers which seem to offer him or her solid information. This is especially true when standing on an interpretative crossroads, seemingly forced by the numbers to choose between two opposing views of history. As every ancient Roman could tell us, crossroads are dangerous places where ghosts and evil spirits meet. When not properly appeased, these spirits would lure the unwary traveler in the wrong direction and toward his doom. This article is a small story about a crossroads of figures that lured ancient historians into an endless, and basically unsolvable, discussion: Roman demography.

In a small way, I am part of this story. When I began working on my PhD, I had the idea that I had something to add to Roman demography. I was intrigued by the debate which had been ongoing since the nineteenth century, concerning the number of inhabitants of the Italian peninsula in the second and first centuries BC (Scheidel, 2008). Therefore, I asked Theo Engelen to become one of my supervisors. With his experience and his broad vision on demography, ranging as far as the extremes of the Eurasian land mass, I was convinced he was the person to help me avoid Eurocentric interpretations and find my way on the rough and winding road through the world of demography. In this chapter, I will discuss the problem with numbers and demography in antiquity, the discussion of Roman demography, and my own interpretation of the Roman census figures. At the end, I will come back to the crossroads.

At its heart, the debate on Roman demography is a discussion about the interpretation of the Roman census figures, the total numbers counted during different censuses. The interpretation is difficult as the census fig-
ures rose quickly in the second and first centuries BC: from 310,000 citizens in 130 BC, to 910,000 in 69 BC, to more than four million in 28 BC. Although part of this rise can be explained by the extension of Roman citizenship to most of the inhabitants of the Italian peninsula in the first century BC, this cannot be the whole explanation. In particular, the rise in the forty years between 69 BC and 28 BC is simply too large to be due only to natural increase and an extension of citizenship. It seems more likely that something changed in the process of census taking or that the categories of citizens counted during the census changed during this period. To a large extent, the interpretation of Roman demographic development depends on the explanation given for this steep rise. It does not only affect how we look at the number of Roman citizens: since demographic models of the ancient world are often based on an extrapolation of the Roman census figures, it also affects the number of inhabitants calculated for the Italian peninsula, and, by extension, the whole of the Roman Empire.

From the moment that I began to work through the literature on Roman demography, I had the distinct feeling that this debate started from the wrong premises. It seemed to be based more on a nineteenth-century European vision of demography than on a Roman one, and it seemed to start from nineteenth-century categories of citizenship. Current explanations also assumed a strong top-down influence from the Roman government, especially during the reign of the first emperor Augustus. This, to me, seemed not to fit with what we know about the Roman census and Roman society. We know that only the head of each family group, the familia, made a declaration during the census, in which the members of the familia and the property of this group were declared (Northwood, 2008). In contemporary sources, the census figures are often introduced by the formula *censa sunt civium capita*, ‘counted/registered are the heads of the citizens’. Furthermore, the census figures are always mentioned as part of the *lustrum*, the ceremony with which the census was concluded.

Based on these clues, I wondered whether the census figures were based on a constructed category of citizens at all, such as all adult men or every person with citizen status. Could it be more simple: could it be that the census figures were simply the total number of declarations made during the census? This number was possibly relevant to the concluding *lustrum* ceremony, because it was the same number of that of all the familiae, the building blocks of Roman society. This would suggest that the total number of census declarations rose quickly in the first century BC, but
not necessarily the total number of citizens. In my opinion, this fitted neatly with another development in Roman society, the growing number of women who became their own head of *familia*, including married women (Van Galen, 2016). By the end of the first century BC, there seem to have been as many female heads of *familia* as male ones. If women did not make census declarations in the second century BC, but half of the census declarations were made by women in the Augustan era, than this development (together with the new groups who received citizenship in the first century BC) could easily explain the rise of the census figures. I still think it is a feasible explanation, more in line with the historical evidence, but it did not solve the underlying problem with the interpretation of numbers in antiquity.

**NUMBERS AND DEMOGRAPHY IN ANTIQUITY**

In his *Histories*, the Greek historian Herodotus writes about the army amassed by the Persian king Xerxes to invade Greece in 480 BC. Herodotus describes the Persian troops and concludes that the complete Persian army and fleet, including support troops, comprised a grand total of 5,283,220 people. Herodotus wrote his work only forty years after the war itself and his description of the Persian army is very specific and put into context. It seems to be a figure as reliable as one can get in antiquity. However, this figure becomes less convincing once we realize that it suggests that the Persian army for only this one military campaign was already twice as large as the total number of soldiers enlisted in the Union army for the whole of the American Civil War. Based on the assumption that an army of this size is unrealistic, most historians dismiss the figures, suggesting that Herodotus must have made a calculation error (Barkworth, 1992).

Quantitative historical demographic research is mainly based on populations in the nineteenth and twentieth centuries, because for this period good archival sources are available. Early modern demographic information is far more limited, often more difficult to interpret, and mainly available only from certain areas, mostly in (Western) Europe. For periods prior to the early modern era, studying demography becomes even more difficult. The subject of numbers in ancient sources is a vexed one. There are hardly any original archival documents, except for some papyrus documents found mainly in Egypt (Bagnall & Frier, 1994). Most figures handed
down to us from antiquity are either found on inscriptions or in literary texts.

Although no figures can be taken at face value, these are even more problematic because they were handed down to us as part of a narrative. Figures are often presented as part of a literary construction, without context and without information about the sources upon which they are based. There is also a problem of transmission. Literary texts and inscriptions are often incomplete. Furthermore, the literary texts which we possess today are not the original texts. They have been hand-copied a number of times, and often abbreviated, since antiquity. This means that copy errors are very likely to have been introduced into the manuscript tradition, which for numbers are hard to detect. Even when we know that a mistake has been made, it is rarely possible to make a correction. For example, the Roman writer Livy mentions that the census figure for the census of 174/173 BC was lower than that of the previous census. However, the figure transmitted to us is actually higher.\textsuperscript{3} Inscriptions seem more reliable, but they too were prone to errors. Even in an important inscription such as the Res Gestae, the political testament of the emperor Augustus, the number of Roman citizens in 28 BC is given as 4,063,000 in the Latin text, but 4,630,000 in the Greek version: an obvious inscription error (Cooley, 2009).

The figures which are available are often not intended to give demographic information, but they can be used in an indirect way to calculate population figures. Calculations of this type are often based on military strength at some pivotal moment in a state’s history, for example Athens in 431 BC or Rome and its allies in 225 BC.\textsuperscript{4} To derive a population figure from these military figures, we have to estimate what percentage of the free male population was enlisted in the army, which groups were left out, what the ratio was between men, women and children, and what the ratio was between free citizens, non-citizens and slaves. This suggests a whole range of different outcomes (Garnsey, 1988; Gomme, 1933; Hansen, 1986). Other types of figures have this problem as well. What does it mean when Xenophon mentions that there were 10,000 households in early fourth-century BC Athens?\textsuperscript{5} Is this a purely conventional figure, only meant to suggest that there were many households in Athens, or is it a rounded number based on some sort of reliable information? Even if it is reliable, how many people does it imply? Do we know enough about Athenian household formation to calculate numbers based on this remark?

Even figures which directly refer to population figures are open to interpretation. Take for example the one known inscription relating to what
is probably the most famous Roman census, that of the Roman province
The auxiliary prefect Q. Aemilius Secundus was responsible for a part of
this census in the city-state of Apamea on the Orontes around AD 6. He
put up an inscription in which he mentioned that 117,000 *hominum civium*
were counted in Apamea. What does that mean? Are all people counted
within the city-state included in this figure? Or only people with citizen
status? Or only full citizens, for example adult men? Even an inscription
like this leads to endless discussions (Cumont, 1934; Kennedy, 2006).

The problem is not only a lack of definition (what is a household in
early fourth-century Athens? What is a *cives*, a citizen, according to Aemi-
lius Secundus?), it is also the isolation of most of these texts. We cannot
place them within a trend or compare them to other figures for the same
population. This is where the Roman census figures play a role. Although
these figures do contain errors, as mentioned above, they offer a series of
figures ranging across 550 years. In theory, they can be used to reconstruct
the development of the number of citizens of Rome during its rise to
power in the ancient world. This will be discussed in the next section.

THE ROMAN CENSUS FIGURES

According to Roman tradition, the census was established in the time of
the Roman kings, before the Republic. The last census was held during
the early Empire in AD 73/74. The census was undertaken by two *censores*,
magistrates who were specially elected every five years, to carry out a series
of long-term tasks for the Roman Republic. They organized large-scale
public building projects, rented out public land and organized the citizens
into voting groups and tax classes. Citizens had to declare their *familia* to
the *censor*, including family members in their authority and their property
(Northwood, 2008; Suolahti, 1963). The *censores* had 18 months to com-
plete their tasks. They ended their magistracies with the *lustrum*. During
this closing ceremony of the census, the *censores* made a sacrifice to ap-
pease the gods for all sacrilegious acts perpetrated by Roman citizens since
the last census. Since the ultimate aim was to make peace with the gods,
the *censores* were supposed to set moral standards for the citizens and the
elite of Rome (Astin, 1988).

Our knowledge of the census is limited. All that we know about the ad-
ministrative process of the registration of the citizens can be summarized
in a few pages, based on small snippets of information found in the works of at least ten different Roman writers (Northwood, 2007). From literary sources, it is known that the declarations were made by the heads of the family groups, the *familiae*. They were the citizens who were *sui iuris*, ‘in their own right’. Only citizens *sui iuris* could own property and they were supposed to represent their family members who were in their authority. The citizens *sui iuris* declared themselves, the members of their *familia* and their property, including slaves. No declaration of a Roman citizen has survived in the archeological record, nor have any lists of citizens, or laws which could give an insight in the purpose of the census.9

The census would have been no more than a footnote in history, were it not for the fact that a series of census figures have survived in the sources. These numbers seem to express numbers extracted from the registrations carried out during a census. They are the only continuous sequence of quantitative information on populations of a pre-modern society (Brunt, 1971). Especially the figures of the second and first century have grabbed the attention of ancient historians for the past 150 years (see Figure 1).

*Figure 1: the Roman census figures between 204/203 BC and AD 73/74.*

![Census Figures](source: Brunt, (1971, p. 13)10)
However, like most other figures from the ancient world, the census figures lack a clear context. It is not clear which citizens are included in the formula *censa sunt civium capita*, ‘counted/registered are the heads of the citizens’, which sometimes accompanies the census figures.\(^\text{11}\) This lack of context is more problematic due to the fourfold increase in the census figures over a forty-year period, between the last Republican census of 70/69 BC and the first imperial census in 28 BC. Explaining this rise is the central problem for any historian who wants to transform the census figures into demographic information.

Since the nineteenth century, a number of interpretations have been put forward to explain this rise, in order to create relevant figures. Three interpretations are still in use today, the most well-known of which is the one proposed by Beloch (1886) and supported by Brunt (1971) in the 1970s. Beloch came up with the idea that during the Republic only adult males were counted, but that the first emperor Augustus changed this to a count of all citizens: men, women and children. This interpretation is based on only a few snippets of sources, surrounded by a thick layer of reasoning. For the crucial change in counting under Augustus, Beloch gives no sources at all. However, the strong point of Beloch’s explanation is that it creates a simple model which can be used to calculate total numbers of citizens both before and after the fourfold rise. According to this model, the Roman citizenry was small, with only 4 to 5 million people in 28 BC (Brunt, 1971; De Ligt, 2012; Scheidel, 2004).

Other historians reacted to Beloch’s interpretation by putting forward a second model based on the idea that only adult males were counted, both during the Republic and the Empire (Frank, 1924; Lo Cascio & Ma lanima, 2005; Wiseman, 1969). According to this model, the fourfold rise was explained by assuming that census declarations could only be made in Rome itself during the Republic. Once Roman citizens started to live further away from the capital, the actual number of citizens and the number of citizens counted started to diverge, probably as early as the third century BC. This problem was solved by the introduction of a de centered census in the middle of the first century BC, the results of which became visible in the Augustan census figures (Lo Cascio, 1999; 2001). In this interpretation, the four million citizens counted in 28 BC were only adult male citizens. Because of the gradual divergence between the census figures and the supposed real population, this model is only useful for calculating figures of citizens from 28 BC onward. It suggests a total number of at least thirteen million citizens at the start of the Empire,
more than three times as high as the number in Beloch's interpretation. The gap between the low and high interpretations of the Roman census figures seems unbridgeable, and supporters of both models have pointed out that the demographic outcome of the other model is either unrealistically high or low (Scheidel, 2008). This provided the opportunity for a third interpretation to come into existence, in which the census figures were interpreted as the sum of all male heads of the *familia*, the citizens *sui iuris* (Hin, 2007; 2013). This idea first came up in the nineteenth century, but it was mostly ignored because the numbers of male citizens *sui iuris* could not explain the fourfold rise (Bourne, 1952; Hildebrand, 1866; Mommsen, 1874; Nissen, 1902; Zumpt, 1841).

In 2007, Hin reanimated this model by suggesting that the rise could have been the result of a decision by the emperor Augustus to count not only the adult male heads of households, but all citizens *sui iuris*. Every citizen without a living ancestor in the male line was considered to be *sui iuris*, which meant that Augustus started to count orphans and some of the adult women as well. According to Hin, the estimations of the percentage of widows in particular among the Roman population have been too low in the past. When they were taken into account this group was large enough to explain the fourfold rise (Hin, 2007). She estimated the number of citizens at eight to ten million persons in 28 BC, somewhere in the middle between the high and low counts.

All three interpretations try to construct an argument with the aim of converting the census figures into useable demographic information. Although they use exactly the same sources, a comparison between the low, high and *sui iuris* interpretations shows a remarkable difference in outcome, ranging from four to thirteen million citizens in 28 BC. To get a total number of inhabitants of the Italian peninsula in this period, slaves and resident non-citizen free foreigners have to be added to the number of citizens. For slaves in particular there are no sources that can be used to suggest an estimate. The number of slaves is a complete guess: the suggestions range from one to three million slaves in Italy during the reign of Augustus (Beloch, 1886; Brunt, 1971; Hopkins, 1978; Scheidel, 2005).
The differences in outcome between the three models is understandable when we look at the argumentative structure used. As mentioned before, due to the nature of the sources it is difficult to assess whether the situation described is exceptional or a common occurrence. An ancient historian who wants to comment on social or demographic developments in general has to refer to what historical sociologist Keith Hopkins (1978, p. 19-20) has called the ‘Wigwam argument’:

Un fortunately there is hardly any sound evidence with which this generalisation can be validated; yet it seems more attractive than any alternative I can think of. There are several pieces of evidence, each insufficient or untrustworthy in itself, which seem collectively to confirm it. I call this the wigwam argument: each pole would fall down by itself, but together the poles stand up, by leaning on each other; they point roughly in the same direction, and circumscribe ‘truth’. I realize that it is dangerous to accept the general tenor of the evidence while doubting the truth of individual pieces. But this is what we are forced to do in reconstructing even the crude outlines of Rome’s (...) social structure.

What Hopkins does not make explicit is that this ‘Wigwam argument’ needs thick layers of logic, models and comparisons with other historical periods to create an argumentative structure which can hold the limited number of sources together. Such a working method is not unique to ancient history. Every historian is familiar with situations in which comparisons and interpretations are needed to supplement the deficient sources. The ‘Wigwam argument’ offers the possibility of showing possible connections between sources, but it runs the risk of supporting the outcome that seems most logical to the researcher. Ancient history is more sensitive to this risk, because there are often fewer sticks available for building the wigwam, and the distance between these sticks is often greater than those in later historical periods.

A fine example of the use of this ‘Wigwam argument’ in ancient demography is the article Human mobility in Roman Italy, 1: The free population by Walter Scheidel (2004), in which he discussed mobility among the free population of Italy. In this 26-page article, the author starts with the statement that he supports the low interpretation as given by Beloch.
and Brunt. His main argument is that he seems to think that the high interpretation is unlikely. In the whole article, he refers to only seven small fragments of source texts, five of which are directly connected to the discussion on Roman census figures mentioned above. The rest of the article is filled with models for migration and comparisons. Let this be clear: it is a good article in which Scheidel makes the most of the limited data, but, in the end, the outcome is based on reasoning, which in turn is based on an underlying assumption about the right interpretation of the census figures.

These underlying assumptions are interesting, because what they seem to come down to is belief in how Roman society should have worked. A proponent of the high interpretation of the census figures once told me that he could not support the low interpretation, because he could not accept that a mighty and powerful state as the Roman Empire had so few citizens. For him, a high number of citizens equaled military and political power. Beloch chose a low interpretation, partly as a reaction to exaggerated claims for the numbers made by earlier scholars, but also partly because for him cultural development equaled a larger population. A high interpretation was not acceptable because it would mean that the Italian peninsula had more inhabitants than Greece, which was seen by him as the pinnacle of cultural development in the first century BC (Beloch, 1913).

Both supporters of the low and high interpretations start from the assumption that only adult men were counted in the census figures. Elsewhere, I have argued that this assumption is influenced by a nineteenth-century vision of citizenship, in which the adult man, as the head of his nuclear family, was central (Van Galen, 2015). This vision was associated with nineteenth-century censuses, which were often justified by the need to assess the military power of the developing nation-states. This was used to argue that the group central to the census was the adult man as a potential soldier, because ‘it would be incomprehensible that the Roman state should attach any importance to figures irrelevant to military strength’, according to Brunt (1971, p. 16) in his book *Italian manpower*.

The *sui iuris* interpretation as given by Hin, and my own interpretation, are not only motivated by the need to find an interpretation which avoids the low and high numbers of other interpretations, but are also based on an assumption about the working of Roman society in which not only men, but also women, played a relevant role. Such an interpretation clearly reflects the preoccupations of our contemporary society and it is difficult to see how it could have developed a century ago. What Hin shares with
the low and high interpretations is her belief in the power of the Roman government, which was able to extract the right figures within those hundreds of thousands or even millions of declarations and compile them into one census figure.

All three interpretations also share the belief in the power of one strong man, especially the first emperor Augustus, to fundamentally change the census. In all three interpretations, the transition from Republic to Empire is seen as the pivotal moment when the census is altered. There is no proof whatsoever for this assumption in the sources, but the difference between the Republic and the Empire, as constructed by historians, is felt so strongly that the rise of Augustus in itself is used as an argument that change must have taken place in this period. As if Augustus, as a sort of wizard, used a magic wand to change a five-hundred-year-old institution in one go.

I do not believe in the use of magic wands in history and I therefore do not like this type of interpretation. It seems unlikely to me that Roman society, which was inherently conservative, would have accepted an overnight change to one of its most visible institutions, especially not when carried out by a man who claimed that he was only restoring the Republic and who was still in the process of consolidating his power in 28 BC. Furthermore, I do not see what the need was for the Roman government to go through the effort of extracting from all declarations a total number of all adult men, persons with citizen status, or citizens *sui iuris* (male or otherwise). For me, the most economical explanation is that the *censores* and their staff numbered the declarations and simply used the total number of declarations as the census figure. The whole administrative operation of the census was no mean feat and the result was probably mentioned during the *lustrum* ceremony and preserved.

My own interpretation of the census suggests that it was not the government who fundamentally changed the census, but the citizens who made the declarations. In my reading of the census figures we have to take into account those who made declarations and their interests to be registered in the census. Somehow, the group who felt entitled to make a census declaration changed. As I discussed at the start of this article, I assume that there is a connection with the growing number of women who became *sui iuris*. This also happened to married women due to a change in marital tradition, which made them no longer part of their husbands’ *familia*. If these women registered themselves, it would emphasize their status as the head of a *familia*, independent from their husbands, but it could...
also offer them the opportunity to lay claim to the benefits of citizenship, like the corn dole in Rome and other largesse. According to my research this change in marital tradition happened in just two generations in the middle of the first century BC (Van Galen, 2016). Around the start of the common era the number of men and women sui iuris was almost equal. It is enough to explain the rise of the census figures.

CONCLUSION

Here the story of my alternative explanation of the Roman census figures ends. I realized that I personally find my model more attractive than the other three models. However, I also realized that there was no more to it than the existing models: the same set of sources, based on my interpretation of what Roman society should be and what I saw as the most likely demographic outcome. I was lured along a particular path by the numbers at the same crossroads which lured all the others.

In the end, I did not publish the model. I did not want to offer just a new interpretation without any new evidence. I steered away from demography and focused instead on the group which was central to my interpretation, but which had not received enough scholarly attention: female citizens. In my thesis, I researched the legal and social position of female citizens in the late Republic and the early Empire (Van Galen, 2016). The end of my demographic aspirations also meant that Theo Engelen never became my third supervisor. Fortunately for me, this did not mean the end of our connection. Theo presided, with flair, over my thesis defense in 2016. Since then, I have been fortunate that we are both part of the same group of economic, social and demographic historians at Radboud University.
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ROMAN DEMOGRAPHY AND THE LURE OF NUMBERS

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3. Livy, *Ab urbe condita* 42.10.3. For the census figure of 179/178 BC, see Livy *Periochae* 41.
6. Inscription *CIL* 3.6687 = *ILS* 2683.
8. According to Livy, the first census was organized by king Servius Tullius in the sixth century BC, Livy, *Ab urbe condita*, 1.42.5. The last known census was in 73 AD, Pliny the Elder, *Naturalis historia*, 7.162.
10. In the cases in which no figure is given, the census figure is missing or the lustrum was never completed. This was mainly the case between 95 and 28 BC, when eight out of ten censuses could not be completed due to political and military troubles in the Roman Republic.
11. Livy, *Ab urbe condita*, 3.3.9, 3.24.10, 27.36.7, 35.9.2, 38.36.10, 42.10.2; Livy, *Periochae* 11, 13, 14, 18, 19, 20, 41, 45, 46, 47, 48, 54, 56, 59, 60, 63; *Res Gestae*-inscription, 8.2-4.