5 The Heterogeneity of the Italian *Civitates*

All free inhabitants of Imperial Italy belonged to a self-governing community.[1] These communities could have different legal status, for example, a *colonia* or *municipium*. I use the term *civitas* to denote the self-governing communities irrespective of their juridical status.[2] Each *civitas* comprised a territory within which an administrative centre (here denoted as 'town') was located. The inhabitants of both the town and the surrounding territory belonged to the *civitas*; the contrast between the urban and rural parts of a *civitas* was a cultural construct and not based on any legal distinction.[3]

According to Pliny the Elder, there were just over 400 *civitates* in Italy.[4] These *civitates* were not uniform.[5] Apart from considerable social and cultural variation, the size of the towns, territories and populations also varied. I already noted in the previous chapter that the territory of Comum (estimated at around 1,500 km^2) was an order of magnitude larger than that of Pompeii (estimated at 80–200 km^2).[6] The size of the population of the Italian *civitates* varied in a similar way. For example, the population of the Pompeian *civitas* has been estimated at between 32,000 and 40,000, while that of Veleia was probably only 5,000 to 20,000.[7]

Apart from local variations, there were also regional differences. Julius Beloch, for example, notes, based on a comparison of the total area of the eleven Italian regions and the number of *civitates* in each of them, that the average *civitas* territory size varied by about an order of magnitude across the different regions.[8] Most notably, *civitas* territories were much larger in

1 Jones 1964: 712, Jacques 1984: 572.
2 *Cf.* the use of the Greek *polis* and following Zuiderhoek 2017. See also Millar 1983: 80 and note 15.
3 Zuiderhoek 2017: 37–55, Wallace-Hadrill 2015: 127–29.
4 Plin. *NH* 3.38–74 and 95–132.
5 *Cf.* Dyson 1992.
6 Comum: Chilver 1941: 45–50. Pompeii: Jongman 1988: 106–8. See also Jacques 1984: 529.
7 Pompeii: Jongman 1988: 108–12, Eschebach 1970: 60–61. Veleia: Criniti 1990: 930.
8 Beloch 1886: 388–91. See also de Ligt and Bintliff 2020, de Ligt 2023: 206–8, Bekker-Nielsen 1989.

Cisalpine Gaul than in southern-central Italy.[9] The northern towns also surpassed those of the rest of Italy in size, population and wealth, according to Strabo.[10] Even though these regional differences might distort an analysis of all the Italian *civitates* together, I assume that the high level of social, political and economic integration that was established at the start of the Early Imperial period warrants an analysis of all the communities together.[11]

The huge size variation of the Italian *civitates* precludes a straightforward extrapolation of the scarce evidence that is extant from a few individual *civitates*. The better-evidenced *civitates* are the relatively large and populous *civitates*, while the majority of the Italian *civitates* were small. The evidence from individual *civitates* can therefore not be taken as representative of the 'typical' or 'average' Italian community.[12] More generally, the entire idea that a central tendency (i.e., a mean or average) of the Italian *civitates* exists is misguided, as their size distribution is heavily skewed (see next section) and therefore has no representative mean.

Previous scholars have acknowledged the size variation in the Italian *civitates*, although their attempts to incorporate it into their models remain rudimentary. For example, Neville Morley proposes a model for the variation in the population of the administrative centres of the Italian *civitates*.[13] He classifies 400 of his presumed total of 432 Italian towns as 'minor cities' (with an average population of 2,000), with three further differentiations among the largest 32 towns. This model thus reduces variation in size across the Italian *civitates* to only four levels.

In the first section of this chapter, I propose a new variation model that is based on the inhabited area of the administrative centres (the towns) of the *civitates*. These areas have been recently meticulously estimated using the available archaeological evidence. The main shortcoming of these catalogues is that information of about half of the towns is missing. I propose to impute sizes to the missing towns using a stochastic method. This type of method makes it possible to formally incorporate the uncertainties associated with the missing data. The resulting variation model is thus both continuous (as opposed to the previous categorical models) and keeps an eye on the uncertainties associated with missing data. In the second section of this chapter, I explore the relationships of the key variable of my

9 De Ligt 2016 and Bekker-Nielsen 1989 analyse the urban systems of northern and central-southern Italy separately.

10 Strabo 5.1.12, but see de Ligt 2016: 21–27.

11 For the integration of Italy in the Republican period, see Roselaar 2019.

12 *Cf.* Morley 1997: 41–44.

13 Morley 1996: 181–83. *Cf.* Morley 2011a: 147–49, Wilson 2011: 182.

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variation model (the inhabited area of the administrative centres) with other demographic, economic and socio-political aspects of the *civitas*.

5.1 A Variation Model of the Italian *Civitates*

I use the size of the administrative centres of the Italian *civitates* as the central variable of my variation model. The level of variation is considerable; the largest town on the peninsula (after Rome) was Capua in Campania with an estimated inhabited area of 180 ha, while the smallest known town is Fagifulae in the upper Biferno Valley in Samnium, which supposedly covered only a single hectare.[14] The range of town sizes thus covers more than two orders of magnitude.[15]

The archaeological evidence for the size of Italian towns is relatively abundant. Moreover, two scholars have recently collected this evidence in a systematic way. Luuk de Ligt assesses the inhabited area of all Italian towns with an administrative function during the early Augustan era.[16] His catalogue includes the estimated sizes of 261 of a presumed total of 415 towns. The second catalogue is that of Jack Hanson.[17] In Hanson's catalogue, the inhabited areas of both Italian and provincial towns are recorded for the middle of the second century CE. This catalogue includes 269 Italian towns.

In the following analysis, I have excluded the city of Rome. The main reason is that Rome was an anomaly within the Italian urban system. It was of a completely different scale compared to the other Italian towns.[18] Its inhabited area and population size have been estimated as nine and twenty-five times as large as the next-largest and most populous towns in Italy.[19] The reason for its anomalous size was that Rome drew in resources from the entire Mediterranean, which meant it was integrated into many other market systems than that of Italy alone.[20] The capital did not even have a formal territory outside its walls after the municipal reorganisation of Italy.[21]

In Figure 5.1, the catalogues of de Ligt and Hanson are presented as size distribution curves. The lines indicate the probability (represented on the vertical axis) that an Italian town is of a certain size (represented on the

14 Capua: de Ligt 2016: 43. Fagifulae: Barker 1995: 230.

15 A range comparable to that of the towns of Britannia and Iberia; see Marzano 2011: 207–15.

16 De Ligt 2012: 193–246 and 289–336, with later alterations and additions in de Ligt 2016.

17 Hanson 2016.

18 De Ligt 2016: 41–42, Scheidel 2008: 31–33.

19 Area: de Ligt 2016: 43–44 (Rome = 1,600 ha and Capua = 180 ha). Population: Morley 1996: 182 (Rome = 1,000,000 and Ostia = 40,000 inhabitants).

20 De Ligt 2012: 218–19; see also Morley 2011b: 171. *Cf.* Bintliff 2002: 244.

21 Sherwin-White 1973: 165–73.

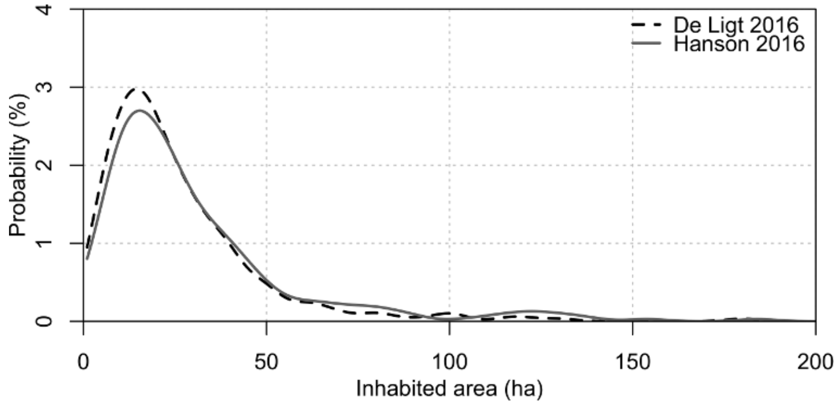

Figure 5.1 Probability density functions of the size distribution of the Italian towns in the catalogues of de Ligt 2016 and Hanson 2016.

horizontal axis). There is a clear peak roughly between 5 and 25 ha, which means that the size of most Italian towns fell in this range. To give an idea, the estimated size of Herculaneum (12–22 ha) falls in this range.[22] The low frequencies from 50 ha onwards reflect the fact that only very few towns were this large.

These distribution curves emphasise the improved granularity of a variation model based on this data. Unsurprisingly, previous categorical models simplify the continuous nature of the size distribution. As a result, these models underestimate the heterogeneity of the Italian *civitates*. A variation model based on the inhabited areas of the Italian towns thus introduces a refinement with regard to capturing this heterogeneity.

The data on the inhabited areas of the towns are (as usual in the field of ancient history) still fraught with problems. First, urban areas are mostly estimated based on a combination of natural and archaeological features (predominantly town walls and cemeteries) as the delimiters. Uncertainties arise regarding both the areas within these limits which remained unbuilt and areas outside them which were settled.[23] The fact that these two biases will at least partly offset each other might offer some reassurance.[24] Second, the available evidence from many towns is for their extent at their zenith. However, the size of many ancient towns may have fluctuated considerably over time.[25] This means that, for a catalogue supposedly describing the

22 Wallace-Hadrill 2015: 125–26, de Ligt 2012: 311, de Ligt 2012: 85 note 40.
23 De Ligt 2016: 22; 2012: 203–4, Marzano 2011: 202. Both of these phenomena are, for example, attested at Pompeii (Flohr 2017: 60–62).
24 Wilson 2011: 170.
25 Horden and Purcell 2000: 263–70. *Cf.* de Ligt 2016: 20–21, Marzano 2011: 202.

situation at a certain point in time, the area of some (many?) of the towns is overestimated. The similarity between the catalogues of de Ligt and Hanson, supposedly describing the situation almost two centuries apart, emphasises this dependence on the same material. A third problem is the difference in urban practices between the different regions of Italy (regionality). De Ligt notes how the urban centres of Venetia were distinctly more spacious than in other parts of the peninsula, which was probably a remnant of its pre-Roman tradition of urbanism.[26] Fourth, and probably most importantly, there is evidence for only about half of the towns of the approximately 415 self-governing communities of Roman Italy. Straightforward extrapolation of the known towns is problematic as the available evidence is biased towards larger towns as a result of increased scholarly interest in the larger centres.[27] In other words, the majority of the missing towns are smaller towns, which needs to be taken into account when sizes are imputed to them.

Both de Ligt and Hanson make an effort to impute sizes to the missing towns to reconstruct the entire settlement hierarchy. De Ligt uses the average size of similarly sized towns in the same region.[28] For this purpose, three size categories are created: small towns with an inhabited area of less than 20 ha, medium-sized towns covering an area of between 20 and 40 ha, and large towns, which are larger than 40 ha.[29] Each town for which there is no archaeological evidence for its size is assigned to one of these categories based on qualitative evidence (mostly references in the works of Strabo, Pliny the Elder and Tacitus).[30] The inhabited area of the missing towns is then assumed to be equivalent to the average area of the known towns in the same size category and Augustan *Regio*. The reconstructed dataset works well for de Ligt's purpose of estimating total urban inhabited area. It however introduces some oddities in the size distribution (i.e., artificial peaks at the averages of the size categories) and it does not take the uncertainties regarding the missing towns into account.

Hanson applies a different method. In a later book chapter, he hypothetically reconstructs the entire Roman settlement system using a theoretical distribution function.[31] In this method, a lognormal function is fitted to his data (see Figure 5.1, which indeed appears to be distributed lognormally) yielding estimates for the two shaping parameters of this function (the mean

26 De Ligt 2016: 22–23.
27 De Ligt 2016: 36.
28 His method resembles that of Hansen 2006.
29 De Ligt 2012: 201.
30 De Ligt 2012: 202–3.
31 Hanson 2023.

and standard deviation). Subsequently, a new random 'sample' (with a sample size equal to the supposed total number of Roman towns) is taken from a theoretical lognormal function with these estimated shaping parameters. This new sample represents one possible reconstruction of the entire Roman settlement system. By repeating this sampling multiple times, a series of reconstructions is created. The variation between the different reconstructions is interpreted as the uncertainty introduced by the extrapolation.

While it is an elegant way of extrapolating the available evidence, there is an insuperable problem with Hanson's method; the available evidence is heavily skewed towards larger towns (in other words, most of the missing towns are small). This can be illustrated using the dataset of de Ligt. According to de Ligt's categorisation, 92 per cent of the missing towns are small, while only 64 per cent of all known towns are categorised as small. As Hanson's theoretical lognormal distribution function is fitted on the (skewed set of) known towns, the predicted distribution will also be skewed towards higher values. This problem is particularly pertinent for a lognormal distribution, as its most important shaping parameter is the *mean* of the (logarithm of the) data.

The crucial step forward is thus to impute sizes to the missing towns while taking into account the expectation that most of them were small. The method of de Ligt accounts for the fact that the missing towns are mostly smaller towns, but is overconfident in the sense that it disregards the uncertainties introduced by filling in missing data. The method of Hanson takes these uncertainties into account, but ignores the biased nature of the evidence. I therefore use a combination of these two approaches. I impute sizes to the missing towns in the different size categories of de Ligt using a stochastic method.

This is in essence the same method as used by Annalisa Marzano to impute sizes to the towns in Roman Iberia for which adequate evidence on their size is lacking.[32] Marzano reconstructs the Iberian urban hierarchy by drawing 200 random numbers between 1 and 9 ha (to represent the 200 missing smaller Iberian towns) and 93 random numbers between 6 and 14 ha (to represent the 93 missing larger towns). My approach is basically the same, but I repeat the random sampling 10,000 times (similarly to what Hanson does) in order to get an idea of the uncertainties introduced by the sampling.

My point of departure is the dataset of de Ligt, including the size categories he allocates to the missing towns. In his dataset, the sizes of all large

32 Marzano 2011: 211–12.

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towns (with an inhabited area of 40 ha or more) are known, except for Tarentum, for which I use 73 ha.[33] For the missing medium-sized (20–39 ha) and small (1–19 ha) towns, I draw random samples from probability density functions (PDFs). I use PDFs with the same boundaries as de Ligt's size categories (between 20 and 39 ha for the missing medium-sized towns and between 1 and 19 ha for the missing small towns). Using PDFs allows me to make assumptions on the size distribution among the missing towns. For example, a uniform PDF (which has the same probability for each value within the PDF's range) implies that similar numbers of towns are missing over the entire range of the size category. As there are no *a priori* reasons to believe that the small and medium-sized towns were distributed evenly between their respective size ranges, I will explore different types of PDFs.

I start by evaluating two scenarios. The first scenario is based on the assumption that the missing towns are concentrated at the lower end of each size category. To reflect this idea, I use two continuously decreasing triangular PDFs. In such a PDF, the lowest values within its range have the highest probability. This shape thus assumes that most of the missing towns had a size close to the lower boundary of the size category. The second scenario assumes that the missing towns are distributed in a similar way as the known towns in each size category. To reflect this idea, I draw samples from two PDFs which are shaped based on the known towns in each size category. In this scenario I thus resample known towns to represent the sizes of the missing towns.

In Figure 5.2a, sets of fifty reconstructed settlement size distributions for all 415 Italian towns are presented for the two scenarios. The light-grey lines are the reconstructions based on sampling from triangular PDFs, while the dark-grey lines are based on the resampling of known towns. The reconstructed distributions reflect the assumptions of the two scenarios. The distributions based on the sampling from triangular PDFs lean towards smaller values, while those based on the resampling of known towns lean towards the larger sizes within the size category (19 ha in the case of the small towns). Making a choice between the two scenarios is hard. On the one hand, the argument that disproportionally many large towns are known due to a scholarly bias towards these towns might also apply *within* the size categories. On the other hand, the nineteen small towns that were added in 2016 by de Ligt to his original 2012 catalogue seem to be distributed very similarly to the original set of small towns.

33 Lippolis 2002: 163, *cf.* de Ligt 2012: 328.

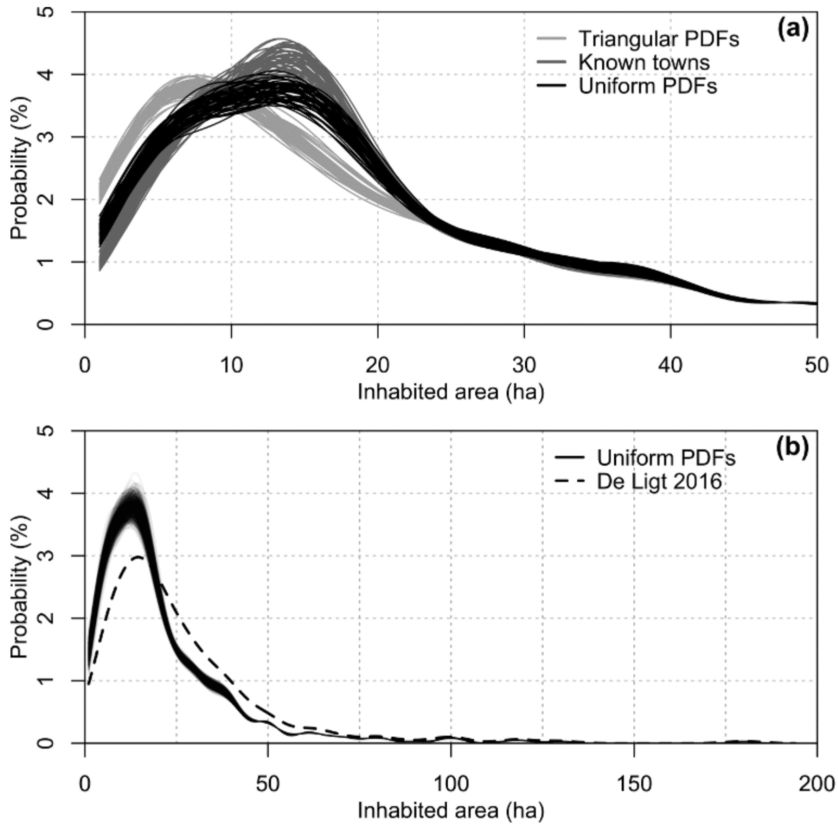

Figure 5.2 Probability density functions of the size distribution of all 414 towns in Roman Italy. (a) Truncated distributions with the size of the missing small and medium-sized towns imputed using PDFs with three different shapes (triangular, uniform and known towns). (b) Complete distributions with the size of the missing small and medium-sized towns imputed using uniform PDFs.

There is a third option, which is to use uniform PDFs. All values within the range of a uniform PDF have the same probability. This scenario falls in between the two scenarios worked out above. The fifty distributions based on sampling from uniform PDFs (the black lines in Figure 5.2a) cover the middle ground between the other two scenarios. This seems the most prudent approach.

Figure 5.2b presents the superimposition of 1,000 reconstructed settlement size distributions using uniform PDFs. For these reconstructions, I took 1,000 lots of 141 random samples from a uniform PDF ranging between 1 and 19 ha for the missing small towns and 1,000 lots of 13 random samples from a uniform PDF between 20 and 39 ha for the missing medium-sized towns. A comparison of these reconstructions with the original data of de Ligt's 2016 catalogue (added as the dashed line in Figure 5.2b) reveals that

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the addition of the missing towns does not change the overall shape of the distribution; it still appears as a lognormal distribution. However, the mean of the reconstructed distributions (close to 21 ha) is significantly lower than that of the towns in the 2016 catalogue (26 ha).

It is important to stress that I do not conjecture the size of any individual missing towns. The goal of my approach is to get an idea of the overall settlement size distribution, taking into account the uncertainties related to imputing sizes to missing towns. This uncertainty is reflected by the breadth of the set of black lines in Figure 5.2b, which is largest between 5 and 25 ha.

In conclusion, my new variation model for the Italian *civitates* goes beyond previous models in two ways. First, it is continuous as it does not rely on a limited number of arbitrary categories. Second, it incorporates the uncertainties regarding the conjecture of the size of missing towns in a controlled way. In the remainder of this book, I will use a set of 10,000 stochastically reconstructed size distributions for the Italian towns to represent the heterogeneity of the Italian *civitates*.

5.2 Town and *Civitas*

The variation in the size of the administrative centres of the Italian *civitates* can thus be reconstructed in a relatively high degree of detail. Town size is however only one dimension in which the *civitates* varied. In this section, I will explore how the size of an Italian town was related to other aspects of the *civitas*, such as its urban and rural population as well as the scale of its socio-economic and political institutions.

The inhabited area of a town might be a reasonable indicator of its urban population.[34] The link between these two variables is the urban population density. In order for inhabited area to be a reliable proxy for urban population, population density should not correlate with either quantity. Reassuringly, the empirical evidence does not suggest a strong correlation between inhabited area and urban population density in Roman Italy.[35] Jack Hanson and Scott Ortman estimated population densities for thirteen Italian towns, which are presented in Figure 5.3.[36] These estimates are based on archaeological evidence of buildings in sample areas of the towns. The data imply a very weak, positive correlation (larger towns might have had slightly higher population densities).[37]

34 Marzano 2011: 202–5.
35 See also de Ligt 2012: 213–24 and 233–35.
36 Hanson and Ortman 2017: 316–17.
37 The correlation between town area and population density of all Roman towns is also weak, as the low value of R^2 confirms (Hanson and Ortman 2017: 318).

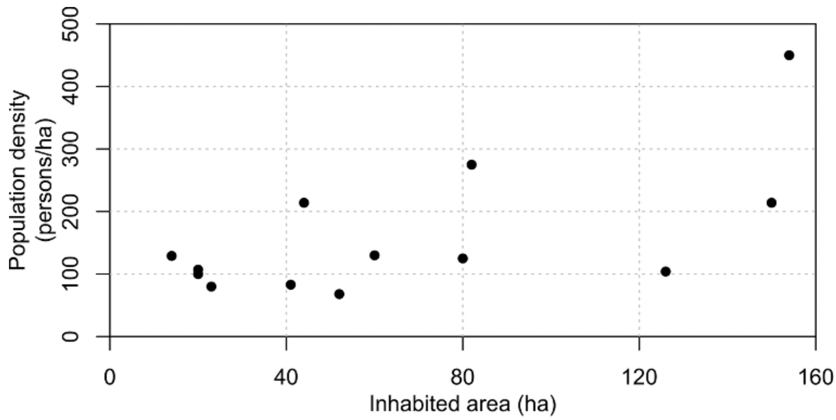

Figure 5.3 Inhabited areas (ha) and population densities (persons/ha) for thirteen Italian towns as estimated by Hanson and Ortman 2017: 316–17.

This weak correlation moreover largely depends on Ostia, which has an exceptionally high density of 450 persons/ha on an assumed inhabited area of 154 ha (the dot in the top-right corner).[38] The inhabited area of Ostia however remains highly contested. The estimate of Hanson and Ortman is probably based on a conjecture of Michael Heinzelmann.[39] Simon Keay estimates that Ostia might have covered 100 ha in the second century CE.[40] Nicholas Purcell even asserts that the built-up area of Ostia never extended much beyond the perimeter of the city walls.[41] If the inhabited area of Ostia were smaller, the dot in the top-right corner would move towards the middle of the graph and the positive correlation would become even weaker.

Moreover, a positive correlation between town size and population density seems also counterintuitive from a mathematical point of view. Population density is population over area and is thus *inversely* related to area. Andrew Wilson, for example, argues that the population density of Timgad decreased significantly once large areas outside the original colony were incorporated within the boundaries of the town.[42] In sum, the very weak correlation between urban population densities and town area suggests that

38 For the exceptionality of the population density at Ostia, see, e.g., de Ligt 2012: 218–19.

39 Heinzelmann 2002 (which is in turn based on geophysical prospection *within* the town walls, Heinzelmann et al. 1997, Heinzelmann 1998). Neither Hanson and Ortman 2017 nor Hanson 2016: 66 refer to the 2002 article, but the 154 ha is also not to be found in the references that are provided.

40 Keay 2022.

41 Hornblower et al. 2012 s.v. Ostia.

42 Wilson 2011: 175–76.

the distribution of the population of the Italian *civitates* would probably have looked similar to the size distribution of their administrative centres.[43]

The urban population of a *civitas* however constituted only a small part of the community; the majority of people lived in the countryside. To what extent did the size of the central administrative town also relate to the entire population of the *civitas*?

There are a few studies suggesting that the size of a Roman town was related to the size of the *civitas*' territory. A comprehensive dataset of the Italian *civitates* is lacking but provincial evidence sheds some light on the issue. For example, the areas of the urban centres of the *civitates* in Gallia Narbonensis show such a correlation.[44] Similarly, it seems that the sizes of the Egyptian nome capitals (the *metropoleis*) were related to the size of their territories.[45]

Not all the provincial evidence however supports this correlation. The work of Frida Pellegrino on the towns and their hinterlands in the north-western provinces indicates only a weak correlation between the two.[46]

The caveat of these empirical studies is that the evidence for the sizes of the territories of Roman *civitates* is very precarious. This is neatly illustrated by Pompeii; scholarly estimates of the territory of this well-researched *civitas* vary by more than a factor of two (ranging from 80 to 200 km^2).[47]

Moreover, territory size is only weakly related to rural population size.[48] The reason is that rural population densities varied considerably. For example, a very high value of 180 persons/km^2 is generally assumed for Campania, while the estimate for the territory of Veleia is only 5–10 persons/km^2.[49] The different densities are a result of variations in the nature of these territories. The territory of Veleia included large tracts of hilly areas (mostly useful as pastures) while that of many Campanian towns included large tracts of fertile volcanic soils (ideal for more intensive agricultural exploitation).

It is more likely that the size of a town correlated with the economic and demographic potential of the entire *civitas* than with the sheer size of its territory. The work of Frida Pellegrino suggests exactly this. Even

43 *Cf.* de Ligt 2016: 37–38.

44 See Garmy et al. 2004: 23–24, esp. figure 13, and the data appended to Pellegrino 2020.

45 Tacoma 2006: 50–51.

46 Pellegrino 2020.

47 Nissen 1877: 375–76 estimates 80–110 km^2, Beloch 1890: 17–18 opts for 100 km^2, Purcell 1990: 112 settles for 115 km^2 (followed by Flohr 2017: 68–70), while Jongman 1988: 106 estimates Pompeii's economic territory at 200 km^2.

48 A relationship between territory size and rural population size was seminally explored by Beloch 1886: 26–29 and 388–443.

49 Campania: Beloch 1890: 457. Veleia: Criniti 1990: 930.

though she observed a weak correlation between the sizes of the towns of the north-western provinces and the area of their administrative territories, a scatter plot of the town sizes and the number of attested villas within their territories (proxying its agricultural and economic potential) suggests a much stronger correlation.[50]

This correlation between town size and the *civitas*' economic and demographic potential is of course also not perfect. The *civitates*' territories were political hinterlands which should not be equated with economic hinterlands. While local taxation was limited to the *civitas*' territory, many other income streams of the *civitas* were not. Italian *civitates* (and members of their elites) had economic interests reaching far beyond the local territories.[51] The Veleian alimentary scheme provides explicit examples of individuals and even entire *civitates* owning land in neighbouring communities.[52]

The link between town size and the economic potential of the local elite (i.e., the part of the local economy the elite was able to appropriate for themselves) might have been even stronger. Paul Erdkamp convincingly argues that elite income stemming from non-reciprocal entitlements on agricultural surpluses was the driving force behind ancient urban economies.[53] The spending power of the local elite thus determined to a large extent the size of the local urban economy and consequently also the size of the town. I thus assume that the Italian towns mesh relatively neatly with the ecology of elite spending power.[54]

This relationship can be further illustrated with two examples. First, the case of Roman Carthage. In the first century BCE, a large colony with a commensurately large territory was established at the location of Rome's former African enemy. From the Severan age onwards, Carthage started losing control over substantial parts of this large territory as several secondary settlements gained autonomy. The city of Carthage was however able to retain its grandeur as the Carthaginian elite (whose expenditure sustained the urban economy) retained the possession of and income from their landed properties in these now self-governing *municipia*.[55] While the Carthaginian territory shrunk, the economic power of the local elite endured, which was mirrored by the sustained grandeur of the town.[56] This example

50 Compare figures 3.7 and 3.9 in Pellegrino 2020. *Cf.* de Ligt 2017.
51 Erdkamp 2001: 342–43.
52 Beigel 2015.
53 Erdkamp 2001, taking a decisive stance in the so-called consumer-versus-producer-city debate (see Zuiderhoek 2017: 43–49 for a recent summary of this debate).
54 *Cf.* Horden and Purcell 2019: 72–83.
55 For the sustained prestige of the Carthaginian curial elite in the third century CE, see Jacques 1984: 235–39.
56 De Ligt 2023: 236–38, Jacques 1984: 548.

thus shows how the economic power of the local elite, more than the size of its territory, determined the size of a town.

Forum Novum serves as the second example. At the beginning of the third century BCE, the Sabines were decisively defeated by the Romans and substantial parts of the conquered land fell into the hands of the Roman elite. As a consequence, these areas became dotted with large villas owned by Roman absentee landlords. Gary Farney argues that Forum Novum was created in the area as a commercial and political 'service centre'.[57] As most of the land in the area was owned by absentee landlords from Rome, there was no opportunity for a local elite to flourish. As a result, the town of Forum Novum never grew beyond a local service centre. Archaeological excavations confirm this narrative as the town comprised various public buildings (a forum, baths, an amphitheatre) but hardly any residential buildings. The lack of an emancipated and flourishing local elite thus reined in the growth of the local town.

Even though elite expenditure was important, it was of course not the only contributor to the urban economy. Especially larger towns would often have drawn in income from other sources as well, for example, by supplying goods or services.[58] To stick with the example of Carthage, even though substantial parts of the town's population were supported (in)directly by the expenditure of the local elite, some Carthaginians must have earned their livelihood by providing services for the supply of African grain to the city of Rome. They were not directly sustained by the expenditure of the local elite (although many members of the Carthaginian elite would be involved in the grain supply as well).

A recent theoretical framework, Settlement Scaling Theory, also suggests a link between town size and the scale of local economic institutions.[59] The theory is developed to explain the correlation between the population size of a settlement, its physical properties (e.g., the length of the road network) and its socio-economic output (e.g., local GDP) that has been observed empirically for both modern and premodern urban systems.[60] By approaching urban settlements as social networks embedded in the built environment, the theory has been able to predict both the existence and magnitude of the correlations observed in the evidence. This thus confirms the existence of a link between the size of a town and the scale of its economic institutions.

57 Farney 2019.
58 *Cf.* Erdkamp 2001: 337–41.
59 Bettencourt and West 2010, Bettencourt 2013.
60 For a historical example, see Ortman et al. 2014. For an application of the theory to the towns of the eastern half of the Roman Empire, see Hanson et al. 2019.

In conclusion, the inhabited area of the administrative centres of the Italian *civitates*, which forms the basis of my variation model, is related to different demographic and economic aspects of the *civitas*. The strongest of these relationships are between town size on the one hand and urban population and the economic potential of the local elite on the other. Even though there will be many individual exceptions, I assume that the overall distribution of the inhabited areas of the Italian towns can provide insight into the variation in scale of the economic and socio-political institutions of the Italian *civitates*. It is worth noting that this is what Roman historians often do (without discussing details). For example, Henrik Mouritsen relies on similar assumptions when he argues that Forum Novum was too small, and thus too poor, to have 100 decurions, even though an inscription with the title *centumviri* was found in the town.[61] Similarly, François Jacques argues that the territories of some African *civitates* were too small to provide sufficient land for 100 local decurions to have owned the canonical HS 100,000.[62]

5.3 Conclusions

Any study of the Italian self-governing communities (the *civitates*) needs to take their heterogeneity into account. Previous models of variation are categorical and disregard the uncertainties associated with missing data. I propose a new variation model based on the inhabited area of the administrative centres of the Italian *civitates*. A recent catalogue, which draws on large amounts of predominantly archaeological data, forms the basis of this model. The resulting variation model is not only continuous instead of categorical but also formally incorporates the uncertainties regarding filling in missing data. Moreover, the proxy variable forming the basis of the model (i.e., town size) seems to be related to the scale of various economic and socio-political aspects of the *civitates*.

The variation model of the Italian *civitates* will be used in this book in two ways. First, it will provide a frame of reference for contextualising isolated pieces of evidence from individual *civitates*. Second, it will be employed as a tool to extrapolate the fragmentary Italian evidence to form a picture of the peninsula as a whole. The next chapter, which discusses the size of the Italian municipal councils and the local census qualification, will use the new variation model in both of these capacities.

[61] Mouritsen 1998: 234–35.
[62] Jacques 1984: 529–30.