

Quod omnium nationum exterarum princeps Sicilia

A reappraisal of the socio-economic history of Sicily under the Roman Republic, 241-44 B.C.

Master's thesis

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Introduction

1. Aims and motivation

In this thesis, the prime question I seek to answer is: what were the socio-economic developments in Sicily under the dominion of the Roman Republic, and in turn how did Sicily impact the Republic? My geo-temporal focus is on Sicily and Rome between 241 and 44 B.C., with special emphasis on the second century B.C. The starting point for analysis is selected as in that year Rome conquered western Sicily and effectively pulled eastern Sicily into her sphere of influence as well. The terminus is set at 44 B.C., when Caesar bestowed Latin rights upon the Sicilians, which was the first step in the process of Sicily losing her provincial status. Also, the death of Caesar later that same year effectively started a chain of events that would eventually lead to the end of the Republic in 27 B.C.¹ Three reasons have motivated my choice for this subject and are related to the goals I wish to achieve with my analysis.

The first reason is the crucial role that Sicily has played in the Central-Western Mediterranean during the Hellenistic and Republican periods. Roman dominion over Sicily proves key to understanding the politico-economic developments of the mid-late Republic. Sicily was the first Roman province, and the dynamic operating between Sicily and Rome was one of the first instances where two ancient economies became structurally linked. Already in 70 B.C., Cicero noted the critical role Sicily had played in the expansion of the Republic's borders and population. The invocation of Cato's famed wisdom suggests that this insight already predated himself – possibly a by century:

‘Therefore our ancestors made their first strides to dominion over Africa from this province. Nor would the mighty power of Carthage so soon have fallen, if Sicily had not been open to us, both as a granary to supply us with corn, and as a harbour for our fleets.’

‘Therefore that illustrious Marcus Cato the wise called Sicily a storehouse of provisions for our republic—the nurse of the Roman people.’²

My aim here is to analyse and demonstrate how Sicily aided Rome in her conquests, provided the Republic with administrative models and ‘nursed’ the Roman people.

¹ Appian, *Sic.* 2; Cicero, *Att.* 14.12; Plutarch, *Caes.*;

² Cicero, *Verr.* 2.2.3; 2.2.5.

The second reason is historiographical. Republican Sicily, especially the second century, has been understudied. This is remarkable in light of its importance to Roman history, but not without good reason. The scarcity of evidence for this period of Sicilian history makes studying it a difficult exercise. The preceding Greek and Hieronian periods have consequently received much more scholarly attention.³ Studies of the Sicilian economy under the Republic do exist, but the main problem is that these traditional socio-economic analyses are based almost exclusively on Diodorus Siculus' fragmentary account of the Servile Wars and Cicero's Verrine orations. These sources prove invaluable, but present many problems as these cannot be taken at face value. The emphasis of both these sources on the negative side of Roman control, which led to the conception of Republican Sicily as oppressed and exploited. Moreover, archaeology has often been left unconsidered, even though Sicily has seen much archaeological activity over the last decades. In this thesis, I wish to contribute to a more nuanced view of the socio-economic effects of Roman dominion over Sicily by achieving a balance of the literary and archaeological sources.

The third and final reason is methodological. The study of ancient economies (AE⁴) has known widely varying perspectives from the onset: it is an 'academic battleground'.⁵ The two main sides here are the formalists-modernists and the substantivists-primitivists, a division that remains relevant until today.⁶ In the last decades, the AE debate has become dominated by the interrelated theoretical bodies of Development Economics and New Institutional Economics (NIE). This presents a problem, however, as both are built upon modern economic theory and utilize modern ideological standards (i.e. development goals) to 'measure' when states and their economies succeed or fail. This opens the way for loss of context as well as anachronisms, and should thus be avoided. Therefore, this dissertation adopts a more historically sensitive methodology which will be applied to Republican Sicily. My methodology is indebted to Polanyi's substantivism: the concept of a socially embedded economy. The goal is to illustrate that a methodology based on the sources and historical context, rather than external theory, is more suited for analysing of ancient economies.

³ cf. Ross Holloway (2000); Walthall (2013) focuses on the Hieronian period and extends this to the Republican; Smith & Serrati (2000); De Angelis (2016); Malifitana (2004, 2011) comments on this frequently.

⁴ With the abbreviated form, AE, I denote the study of ancient economies, and concepts and methods related to this, rather than factual ancient economies.

⁵ Hopkins (1983) ix.

⁶ Hobson (2014) 11-12.

2. Structure

The structure of this thesis facilitates comprehensively answering the research question and its three aspects as outlined above.

The aim of chapter I is to analyse the problems that exist in studies of the ancient economy and studies of Republican Sicily and to provide a better methodological and interpretative framework to prevent these problems. This serves as a basis to draw upon in the succeeding chapters. The first half of the first chapter is dedicated to historiography, and critical analysis of the methods utilized. This will be done for the field of AE (I.1a) and past studies of Republican Sicily (I.1b). A recent study will receive special attention, as pertains to Republican Sicily and draws used NIE as its interpretative framework (I.1c). The next section offers a methodological framework consisting of two parts which are both geared towards preventing the denoted problems: balancing the use of sources and reintegrating substantivism into AE studies (I.2). Finally, an interpretative framework will be set out to make concrete how I plan to achieve a satisfactory substantivist analysis (I.3).

Chapter II is devoted to a study of the archaeological evidence for the economy of Republican Sicily. Traditional studies of Republican Sicily have given the literary sources too much primacy, whereas recent AE research have used large datasets that lead to overgeneralisations. To prevent this, I have collected a dataset consisting of surveys, urban and rural archaeology of eight ancient cities and their surrounding territories in Sicily (II.1). For the western half of the island, I have selected Segesta, Iatas, Heraclea Minoa and Lilybaeum (II.2). For the eastern half these are Centuripe, Tyndaris, Morgantina and Halaesa (II.3). Primacy will be granted to surveys, as they provide insight into demography, settlement, modes of agriculture (e.g. peasant farms or *villae*) and the extent of rural production. These factors are of utmost importance in ancient economies, which were predominantly agricultural economies. Through historical climatic studies, comparative studies and the ancient agronomical sources I seek to reconstruct the traits and viability of ancient Sicilian agriculture, as to interpret the patterns of land usage elucidated by the surveys (II.4). A concise examination of archaeological evidence for non-agricultural production serves to complete the overview (II.5). The data of this chapter will then be compiled into a table, to be used as a reference in the preceding chapters (II.6).

The final three chapters feature a narrative of the economic situation and changes in Republican Sicily. The purpose of these three chapters is to critically reassess the traditional historical narrative through comparisons with the archaeology of chapter II, but also essential

literary criticism. In many cases, the archaeological record will serve to refute or nuance characterizations of the Sicilian economy that were ideologically distorted by Diodorus and Cicero but also to a lesser degree by Livy and Polybius. In some cases, however, the rough chronologies of the surveys can be clarified and specified through synthesis with the literature. Centuripe serves as the primary example here. Each chapter shall have a section devoted to political context to retain a view on the specific historical processes to take into account when analysing the Sicilian economy (III.1; IV.3; V.1).

A division into three chronological chapters is necessary as this prevents the chronological generalisations inherent in traditional studies and to facilitate drawing conclusions from the survey reports. This division has the added benefit of conforming to the three distinct economic phases that characterize the Sicilian Sicilian and the interplay between Rome and Sicily. Chapter III is devoted to the initial phase of Roman conquest of western Sicily and increasing Roman influence over eastern Sicily, most notably Hiero II's⁷ Syracusan kingdom (241-210 B.C.). From 210 B.C. onwards, the entire island was under direct Roman control. In the same year, the (in)famous *Lex Hieronica* was put into effect, marking the start of structural Roman exploitation of the provinces. Chapter IV will be devoted to the long second century B.C. (210-100 B.C.). Lastly, chapter V pertains to the short first century B.C. (100-44 B.C.). In this century the ties between Rome and Sicily became stronger after Gaius Gracchus had passed the *Lex Sempronia Frumentaria* in 122 B.C. This effectively gave Sicilian grain a central place within late Republican politics. In these three chapters, several key themes will be treated that require careful balancing between literature and archaeology but also characterize the corresponding centuries.

The analyses of chapters III to V are geared towards three distinct aspects, which will be treated explicitly in the conclusions of these chapters as well as the main conclusion. This serves to preserve a connection between the comparisons and analyses of these chapters and the methodological aims of this thesis, as set out in this introduction and chapter I. These three topics are: 1. Socio-economic development in Sicily and its effects on the Republic, 2. balance of literature and archaeology and 3. the benefit of substantivist analysis.

⁷ From now on: Hiero.

Chapter I. Establishing a Methodological and Interpretative Framework

To be able to properly study any ancient economy, it is necessary to consider previous scholarship. The first half of this chapter is devoted to denoting the pitfalls to watch out for when studying the Sicilian economy under the Republic (I.1). Then, an alternative will be offered (I.2) and consequently concretized (I.3).

I.1. Historiography, problems and critical analysis

This paragraphs moves from the general to the specific. Two fields require consideration here: the models of the AE and the study of Republican Sicily. A recent study that contains the problems inherent in both of these fields will receive special attention and critical examination. The purpose of this historiographical overview is to take note of the problems inherent in past methodological and interpretative frameworks.

I.1a. The study of ancient economies

Two problems have made straightforward studies of the AE impossible. The first is a severe paucity of sources, that is even worse for studying the economy than any other aspect of ancient society. Not a single literary treatise on economics has survived until this day, which gives rise to the question if such a work ever existed. This is why the study of AE is highly reliant on extension of (generalizable) evidence and sources, as well as speculation and model-building by economists and historians. The second problem follows from the first: the tendency and perhaps inevitability of historians to project their own views onto the past – which is facilitated through the aforementioned dependency on models and conjecturing. Derks, in a heated article, has dubbed ancient history ‘Holy History’: one that historians want to ‘claim’ for their own ideology as it has admired since the Renaissance. Therefore it is exceptionally prone to ideological fraud.⁸

While in the first half of the twentieth century of the AE-debate had already been ongoing on for decades⁹, I feel the conflicting views of Polanyi and Rostovtzeff provide the most appropriate starting point, as these could be taken as the institutionalisation of the substantivist and formalist perspectives. In its most basic form, the distinction between the

⁸ Derks (2002) 598 attacks Finley as the perpetuator of a long line of ideological fraud, based on a (perceived) German, Christianised, autarkic and authoritarian-monarchical model that has been adopted also by socialists.

⁹ Pearson (1957) 3-7.

two comes down to formalists perceiving the AE as only quantitatively different from modern economies, whereas substantivists view it as qualitatively different. Both these authors drew heavily upon Marxism to construct their perspectives. The interesting quality of Marxism here is that it has two sides. The theoretical side could be summarized as the conception of history dominated by the market and class struggle. The ideological side is the endeavour towards an egalitarian utopia.

Rostovtzeff, a modernist, was the first to write ‘a single book or monograph treating of the social and economic life of the Roman Empire as a whole and tracing the main lines of its evolution’¹⁰, namely *The Social and Economic History of the Roman Empire* (1926). The main aim of the book was to ascribe the fall of Rome to an alliance of the rural proletariat with the military in the third century A.D., which led to the decline of the economically beneficent rule of the urban wealthy class that was responsible for the Empire’s success.¹¹ Most importantly, Rostovtzeff draws an almost point-to-point parallel between the (early) imperial economy and that of the period preceding the Industrial Revolution, as both saw unparalleled economic growth based on technological and social advancement. Rostovtzeff thus supposed the primacy of an entrepreneurial class invested in industry and commerce. He could clearly not envision the great empire of Rome having grown without capitalism, and therefore believed it suffered from something akin to modern class struggle. As such, he set the scene for studying the Roman economy as a commercial market economy. This brief summary of Rostovtzeff’s conclusions demonstrates how his thinking was shaped by Marxist theory, but not his ideological outlook, as he postulated that the ‘Roman Revolution’ after ca. 250 A.D. caused the decline of the Empire. This has been aptly described as ‘the marriage of pre-1918 scholarly training and taste with post-1918 personal experience and reflection.’¹² Rostovtzeff therefore emigrated from Russia shortly after the Communist Revolution of 1918.

The first substantivist, Polanyi, embraced Marxism’s animosity towards market capitalism. However, Polanyi rejected the Marxist view of history as a succession of modes of capitalistic production driven by materialistic determinism.¹³ This led him to write *The Great Transformation* (1944), which examined the political and social consequences of the rise of market capitalism from the late eighteenth century to the Great Depression of the 1920s. Here Polanyi developed a new cultural approach to economics called substantivism,. The premise of the book (the actual Great Transformation) was that before the eighteenth century, the

¹⁰ Rostovtzeff (1926) xi.

¹¹ Rostovtzeff (1926) xiii.

¹² Bowersock (1974) 19.

¹³ Polanyi-Levitt (1990) 116-118; Burawoy (2013) 38-40.

economy was embedded into society, driven by socio-cultural values rather than profit. The capitalist market that rose in early modern times was disembedded – a separate sphere with its own dynamics.¹⁴ Polanyi used this new anthropological economic perspective as a means to rewrite the economic history of antiquity. He utilized the work of Aristotle to demonstrate that the ancient Greek economy was embedded. Polanyi found unlimited human wants and scarcity, two key principles in formalist economics, to be incompatible with Aristotle's conception of economy. The central notion for Aristotle was a 'quest for subsistence' and his key principles were self-sufficiency, community and justice. As such, trade should only serve to restore self-sufficiency and pricing of commodities only to strengthen the bond of community.¹⁵ Polanyi stresses that trade is just one form of exchange, and only became predominant after the rise of capitalism. Before that, the other forms, reciprocity and (state) redistribution, were most common and were disconnected economic rationality.¹⁶ In the biography on her father, Polanyi-Levitt has stated that Polanyi's research in economic anthropology was directly motivated by his ideological outlook. He wanted to find a way 'to organize the economy of our modern technological society in a manner that would make production subordinate to man's societal and cultural needs: how to 're-embed' the economy in society.'

Polanyi's substantivism was later propagated, although in adapted form, by Finley. In 1973, Finley published *The Ancient Economy* which laid down the 'standard' primitivistic outlook ('The Cambridge Orthodoxy'). The book provided a complete model of the ancient economy as a whole, within which self-sufficiency, a lack of rational entrepreneurialism, absence of large scale trade and (Weberian) consumer cities were key. Another crucial point of the book was that the ancients themselves did not know the concept of 'economy', rendering, in Finley's view, modernist economic analyses of the ancient economy obsolete as their analytical tools were inapplicable.¹⁷ This work made Finley the defining influence in the field, and created a (primitivist) consensus. Finley had successfully integrated sociology and anthropology into mainstream Roman economic history.

This consensus started fading in the 1980s, when Hopkins succeeded Finley at Cambridge. Hopkins' *Taxes and Trade in the Roman Empire* (1980) addressed the main pitfall of Finley's theory: the conception of the AE as a single static unit that remained unchanged for roughly a thousand years. Hopkins adhered mostly to Finley, but his alterations

¹⁴ Polanyi (1944) 45-51.

¹⁵ Polanyi (1957) 78-88.

¹⁶ Polanyi (1944) 47.

¹⁷ Finley (1973).

of the model appropriated some growth of the economy through trade and taxation – especially during the Principate. Still, he asserted that ‘the classical man did not behave like an economic man’.¹⁸ Hopkins’ contribution remains valuable, as it drew attention to the influence ancient states could exert on economic situations.¹⁹ But now that Finley’s authority had begun to be challenged, other criticisms followed. Mainly Finley’s downplaying of the role of and extent of (long-distance) trade was proven to be exaggerated, as evidenced by the rapidly growing archaeological corpus. Especially evidence for large scale oil and wine production and dispersion of these products (shipwrecks, *amphorae*) proved instrumental.²⁰ However, despite growing criticism, Finley retained his original outlook on the AE – as stated in the reprint of his influential book. He kept his strong belief in the ubiquitous applicability of his model, although he did appropriate a place for the newly surfaced archaeological evidence.²¹

While my personal view is quite in line with that of Finley, I concur that primitivism offers no solution to understanding the complex workings of ancient economies. It is sometimes forgotten that Finley’s theory was in part a polemic reaction to the dominance of modernists like Rostovtzeff but also the cliometrics revolution of the 1960s (see below).²² As such, Finley used large quantitative differences to underscore his main point: the qualitative differences between ancient and modern economies. His downplaying of the role and extent of growth and commercial activity was almost inevitably overstated.²³ The main problem I personally have with the primitivistic model is not only that it does not appropriate chronological changes (akin to Hopkins’ argument), but rather that claims there was only one economic outlook in ancient society. Finley based this notion on the literary sources, and when only these are considered, the primitivistic outlook indeed suffices. But the literary sources were a strictly elite domain, and extending its outlook and economic strategies to the rest of the stratified ancient society is to deny the complexity of the ancient economy (cf. I.3c). As I will demonstrate in chapters III-V, it is often these different strategies of the various classes that aid in fathoming socio-economic changes during the Roman Republic. Despite of this, I deem Finley’s elaboration of Polanyi’s socially embedded economy remains a very useful tool in studying the economic strategies of the Roman elite.

Hopkins, with his *Taxes and Trade*, had put forward a concept that was largely left

¹⁸ Hopkins (1980)

¹⁹ Hopkins (1980).

²⁰ Tchernia (1983); Pucci (1983).

²¹ Finley (1999) 177-207.

²² e.g. Erdkamp (2014) 226.

²³ Hobson (2014) 15.

unconsidered in Finley's model: economic growth in antiquity. Economic growth and how to determine it became central to the AE debate in the 1980s and 1990s. The Cambridge Orthodoxy had left its mark, but more and more scholars started rejecting it due to Finley's exclusion of modern economic theory. As an example, Jongman referred in this context to 'the spell of Moses Finley' and stated that 'a large part of the discussion of the last few decades on the nature of the ancient economy has been wasted energy'.²⁴ With the new millennium came the emergence of a new paradigm, based upon the theoretical basis of Development Economics. This field of study was conceived for modern developing nations, and as such geared towards determining and measuring the extent of economic growth. Development Economics was first brought into AE studies by Garnsey and Saller, in *The Roman Empire: Economy, Society and Culture* (1987). They focussed on ascertaining growth and which factors hindered said growth,²⁵ and wanted to inquire into the 'peculiarly Roman form or forms of underdevelopment'.²⁶ This book, however, paved the way for other scholars to view the Roman Empire analogous to modern developing nations, and to find reasons behind the 'failure' of the Roman economy compared to other economies (including modern ones). The tools for 'measuring' to what extent and why ancient economies succeeded or failed, have been supplied by New Institutional Economics (NIE). An often-used tool provided by NIE are transaction costs: constraints that socio-cultural institutions directly or indirectly impose on economic growth. Together, Development Economics and NIE form the new dominant paradigm within the field of AE, as becomes apparent from *The Cambridge Economic History of the Greco-Roman World* by Scheidel, Morris and Saller. They drew upon NIE as a guiding principle in their search for Roman economic growth, and as such NIE was hailed as both the solution to the primitivist-modernist debate and the bridge between the sources and models.²⁷

I strongly disagree with the dominance of Development Economics and NIE, the synthesis of which I will refer to as the neoliberal paradigm, as this brings ideological connotations too. To fully comprehend what this entails, it is necessary to regard first the developments of the last few decades outside of ancient scholarship. This has the added benefit of demonstrating what value antiquity continues to have for our present society. I will draw mainly upon the works of Hobson and Boldizzoni to identify this development.

Since the end of the Cold War, neoliberalism has become the world's dominant

²⁴ Jongman (2006) 237-238.

²⁵ Garnsey & Saller (1987) esp. 43-63.

²⁶ Garnsey & Saller (1987) 43.

²⁷ Scheidel, Morris & Saller (2007), esp. 1-3; esp. Frier & Kehoe (2007); Jongman (2007); Kehoe (2007).

ideology. Politically, this entails democracy and economically the predominance of free market capitalism. This development has come into the academic sphere, where Western (conservative) intellectuals proclaimed that the values of democracy and the free market had ‘won’ and would continue to prevail. This sentiment was captured most famously by Fukuyama’s ‘end of history’.²⁸ Even though his work fuelled much controversy and debate, it retained a continuing influence. During the administrations of president George W. Bush the ideas of scholars like Fukuyama were utilized in the construction of a liberal world under American hegemony. Especially the think-tank *Project for the New American Century*, of which Fukuyama was a member,²⁹ proved instrumental. Boldizzoni stresses that

‘Whereas the ideological dimension was explicit in public discourse, in academic products it was thinly disguised to present the desired outcome as the consequence of a series of necessary conditions.’³⁰

This has proven to have serious implications for economic history. The central figure here is North. His early work focused on growth in the modern American economy, and was revolutionary for its use of statistical economic analysis.³¹ The field of quantitative analysis of historical economies is cliometrics, of which North was one of the founders.³² His work presents the same tenet as Fukuyama’s: a desire to place the current world-dominance of the West and its neoliberal ideology into a long line of development. The perspective adopted here is a teleological one, where the endpoint is fixed and history is written to conform to and sometimes justify this end. Not for long North generalized his findings and methods, and applied them to the *longue durée* of (economic) history, which marks the starting point of his anachronistic approach in the assessment of pre-capitalist economies.³³ Having grown dissatisfied by the dominance of neoclassical economics, however, North later criticised cliometrics. He drew upon the discipline of history to ‘humanize’ economics, which led to the creation of NIE. North’s new theory was met with unprecedented success.³⁴ Both North and Coase, another important figure in the creation of NIE, have received Nobel Prizes of Economics in 1993 and 1991 respectively. These awards were partly responsible for the

²⁸ Fukuyama (1992).

²⁹ Fukuyama has since distanced himself from this project and renounced his support for Bush, see Fukuyama, F., *America at the Crossroads* (2006).

³⁰ Boldizzoni (2011) 55-56.

³¹ North (1961).

³² Cliometrics was a mainly American phenomenon, and attracted much criticism. The eminent historian Hobsbawm, in his Marshall Lectures, dubbed it ‘neoclassical theory – projected backwards.’

³³ Hobson (2014) 16-17.

³⁴ Bang (2009) 196-197.

widespread adoption of NIE in AEs research.³⁵ Boldizzoni, however, has provided a succinct summary and critique of this development:

‘North noticed the absence of institutions from standard economics and decided that they should have a part in it. But while he restored them to economic theory, he explained their genesis in terms of the same theory he wished to improve. This is a circular procedure, as epistemologists would call it. Its roots lay in North’s assumption about the universal nature of certain social arrangements (North et al. 2009) and in his methodological individualism.’³⁶

North thus appears to present a method that is sensitive to the different economic outlooks of pre-capitalist economies, but in the most basic premise it still presumes economic rationality. Transaction costs, then, are barriers societies and institutions impose on individuals in bringing into practice their inherent desire for profit maximisation (through market exchange). This draws directly on the neoclassical economic assumption of ‘unlimited wants and limited resources’ that North set out to criticise and improve. If transaction costs were lowered enough by any means, market exchange and economic growth would follow. This growth is then presented as a universal solution to a society’s problems.³⁷ Here, the connection between NIE and Development Economics becomes clear: North sought to find which institutions or practices limited historical ‘underdeveloped’ economies from reaching development goals set for modern Third World countries in the HDI, by organizations like the World Bank.³⁸ Scholars like North and Fukuyama were very influential in institutionalising the ‘ideology of economic growth’, especially in regard to developing nations.³⁹ This imbues their work with a high degree of authority for setting the standards by which states and their economies succeed and fail. These standards, however, prove highly anachronistic for pre-industrial economies as the theory on which they are based derives from studies of capitalist post-industrial economies.

We can now return to the AE debate, where NIE and Development Economics have been hailed as the solution to the primitivist-modernist division but also the prime methodology capable of connecting sources, theory and models. This is what prompted

³⁵ Scheidel, Morris and Saller (2007) 1 mention North’s status as Nobel laureate on the first page.

³⁶ Boldizzoni (2011) 18 mainly in reaction to North (1992).

³⁷ cf. Millett (2001) 21-22.

³⁸ Hobson (2014) 16;

³⁹ e.g. North et al. (2008).

Jongman to call the entire debate until then (2006) ‘wasted energy’. Ironically, as Hobson noted, the distinction remains – but in a new guise:

‘for the neo-primitivists on the one hand, the Roman empire is apparently now to be viewed as analogous to a ‘developing nation’, and explanations for the failure of its economy to achieve the kind of ‘significant growth’ which supposedly could have improved living standards, are to be sought in the structural obstacles provided by its institutions and the cultural mind-set of its population. (...) On the other hand the modernists, for whom formal neoclassical economics remains entirely relevant and who have been increasingly welcomed back into the centre of discussion, continue to maintain that the Roman world should not be confused with a range of ‘primitive’ societies whose institutions wreck incentives and stifle free-market performance.’⁴⁰

Two main problems emerge here for Roman economic history. The first is the presumption of economic rationality and individualism underlying all economic growth. This problem predates NIE, however, as Rostovtzeff in the 1920s already failed to imagine the universally admired Roman Empire having grown without capitalist stimuli. But where Rostovtzeff’s frame of thought was involuntarily shaped by Marxism, NIE deliberately sets commercial stimuli and market exchange as necessary conditions for economic growth due to ideological considerations. A case in point with regard to this problem is Temin’s *The Roman Market Economy* (2012). The book is concerned with market integration, which is the extent to which trade can connect supply and demand: in regions with integrated markets this leads to similar prices everywhere.⁴¹ Temin wants to demonstrate that the entire Roman Empire had a single integrated grain market. However, the evidential base is very narrow: merely 6 price figures, which are geo-temporally highly dispersed.⁴² Temin proceeds to draw direct parallels between the price of grain at Rome and other parts of the empire, which varied only because of transportation costs. This reflects a more general tendency in Temin’s work, in which he also, among other things, estimates the per capita GDP in the Principate and develops a growth theory for ancient economies – all based on little evidence that is overgeneralised.⁴³ From the outset it becomes evident that Temin’s methodology shaped his conclusions. He sees the

⁴⁰ Hobson (2014) 11-12.

⁴¹ cf. Finley (1999) 177-179; Erdkamp (2004) 144.

⁴² Temin (2013) 27-52, esp. 41-43.

⁴³ Erdkamp (2014) for a summary and astute criticism; see also Erdkamp (2004) 143-155; 207 for a better view on Roman market integration.

Empire as consisting of commercial links, rendering it unsurprising that he finds an integrated market. The third and fourth chapters exemplify how the problem of the sources is overcome: by extending price figures from Babylon, a different geo-temporal context, to Rome.⁴⁴ Erdkamp notes: ‘This is quite revealing concerning the limitations of the Roman price evidence: far from providing a solid foundation for the postulated integrated grain market, Temin has to use data for Hellenistic Babylon to infer the nature of the economy in the Roman world.’⁴⁵ Still, the book received mainly positive reviews – Erdkamp’s mixed review being an exception.⁴⁶

This takes us directly to the next problem: the loss of uniqueness of (Roman) antiquity inherent to the utilization of Development Economics, as all pre-industrial economies are measured against modern standards and as such all fall under the common denominator of ‘underdevelopment’. Garnsey was the first to introduce Development Economics into ancient history, but not as a means to find why the Roman economy ‘failed’, but as a means to bridge the gap in the evidence using comparative history. Drawing on comparative evidence often proves the only means that facilitate studying the peasantry, as these are virtually absent from ancient literature.⁴⁷ ‘Peasant-experts’ like Garnsey and Gallant justify their comparisons, and give primacy to the ancient sources. Others see no need, as Jongman describes quite literally: ‘We have persuaded ourselves that antiquity is unique, so we delude ourselves into thinking we do not need to know what others do.’⁴⁸ He draws attention to the fact that there is only one development that marks a true change in economic history: the use of fossil fuels. This marked the true shift from a world constrained by poverty and a Malthusian ceiling⁴⁹ to the enormous affluence of the current era.⁵⁰ When using a singular measure for the failure or succeeding of economies, the differences between historical and present ‘underdeveloped’ economies start to fade, which entails a loss of context that is detrimental to historical studies. This leads, for example, to drawing anachronistic conclusions about the Roman economy based on Babylonian grain prices. Anthropologist Escobar has cast this trend in a political light in consideration of the origins of Development Economics:

⁴⁴ Temin (2012) 53-93 on extension of Babylonian prices behaviour to the Roman Empire; 195-219 on AE growth theory; 243-262 on assessment of per capita GDP.

⁴⁵ Erdkamp (2014) 231.

⁴⁶ cf. Hoyer (2013); Ivanov (2013); Velde (2014).

⁴⁷ Dio Chrysostom 7 being a very rare exception; cf. Erdkamp (2004) 55-58.

⁴⁸ Jongman (2006) 237.

⁴⁹ T. Malthus, *An Essay on the Principle of Population* (1798) established the theory that population growth would inevitably outpace agricultural production. The Malthusian ceiling is the effective limit of economic growth, after which Malthusian checks (like famine) will lead to drastic demographic and economic decline.

⁵⁰ Jongman (2006) 238-241.

‘The coherence of effects that the discourse achieved is the key to its success as a hegemonic form of representation: the construction of the poor and underdeveloped as universal, preconstituted subjects, based on the privilege of the representers; the exercise of power over the Third World made possible by this discursive homogenization.’⁵¹

After elucidating the problems of AE research, it becomes possible to succinctly summarize the prevalent problems in recent studies. The literary sources (ideological dimension) have taken a backseat to archaeology (material dimension). A neoliberal paradigm, the interrelated theoretical bodies of Development Economics and NIE, is then used to interpret that material record. These theoretical frameworks were not developed as interpretative frameworks for ancient economies, and thus supply anachronistic ideological standards and conditions to determine whether economies succeeded or failed to achieve growth. This facilitates a loss of historical context, as all pre-industrial economies are measured against modern post-industrial economies and as such are all similarly underdeveloped. The conditions for economic growth are the possibility for individuals bringing into practice their inherent capitalist desires and engage in market exchange. A solution will be sought in I.2 and I.3, but the problems of the study of Republican Sicily require consideration first.

I.1b. The study of Republican Sicily

The primary problem inherent in studies of Republican Sicily is that these draw almost exclusively on literary sources. Moreover, scholars have often accepted these accounts without sufficient criticism. I will concisely go over the primary sources to explain the prevalence of false interpretations of Republican Sicily. More elaborate treatment and referencing follows in chapters III-V.

The sources for the period between the First Punic War (264-241 B.C.) and the Second Punic War (218-201 B.C.) are Appian, Polybius, Diodorus and Livy. Because these sources provide either fragmentary, anachronistic or moralistic accounts, the institutional nature of Roman provincial administration in the interwar period has been overstated. Because the Sicilian phases in these wars differ from the total extent of the wars, but also vary regionally within Sicily, the interwar period falls between 263-249 and 215 B.C. What remains unclear was to what extent Roman magistrates and armies were present and whether or not Rome already imposed structural administrative and tithes⁵² systems on Sicily. Serrati and Scramuzza

⁵¹ Escobar (1995) 53 as noted by Hobson (2014) 13.

⁵² A tithes is a 10% agricultural tax in kind on the main crops.

have asserted that structural Roman provincial policy existed from the start, but Prag points out that this is an argument from silence.⁵³ Appian, writing approximately three centuries later, is the most concrete source here, and he indeed indicated that Rome already levied a tithe from 241 B.C. onwards. However, he also wrote that Rome sent a magistrate annually from this date onwards, which has proven to be anachronistic.⁵⁴

The sources for the second century B.C. are even more fragmentary. Livy's narrative for 200-167 B.C. has been preserved and it seems there exists remarkably little cause for doubting its historicity. But his narrative exhibits a Romano-centric perspective: he did not provide any details on the Sicilian economy itself, but only on the interactions between Rome and Sicily. It is still highly valuable information, but in itself reveals little of the Sicilian economy. Diodorus wrote an extensive account of the Servile Wars (135-131 and 104-101 B.C.) which survived in fragments but provides extensive information on the nature of the Sicilian economy. But whereas Livy and Cicero (see below) discuss only grain, Diodorus' emphasis is on *latifundia*-based animal husbandry and pastoralism. Furthermore, Diodorus indicates that large tracts of Sicilian land were in the hands of Roman knights, which was traditionally accepted by scholars like Finley.⁵⁵

For the first century B.C. up til 44 B.C., there exists only one elaborate source: Cicero's Verrine orations. Nonetheless, this source is exceptionally informative on the nature of the Sicilian economy and Roman provincial taxation. The study of Republican Sicily has as such been described as the study of Ciceronian Sicily.⁵⁶ Cicero's goal was to paint a picture of desolation and abandonment of the Sicilian countryside after Verres had utterly devastated agriculture during his governorship (73-71 B.C.). Cicero even provided concrete figures on the number of active farmers and extracted tithes, which allow calculations on output and productivity. However, scholars like Pritchard have extended these figures beyond their limits, which led to unjustifiable calculations of average farm sizes. He and Scramuzza have postulated that Sicilian agriculture was predominantly based on large slave-staffed *latifundia*. A similar notion can be derived from Cicero himself, as he deals with only elite landowners and commercial farmers rather than peasants.⁵⁷

Upon accepting the accounts of Livy, Cicero and Diodorus at face value one arrives at the traditional narrative. Toynbee's account presents the best example. After Roman conquest,

⁵³ Serrati (2000) 115-133; Scramuzza (1959) 237; Prag (2007a) 71-72.

⁵⁴ Appian, *Sic.* 2.2.

⁵⁵ Livy 21-43 *passim*; Diodorus 34-35 esp. 34-35.2.3 and 34-35.2.32; Finley (1968) 109-136.

⁵⁶ Prag (2007a) 69.

⁵⁷ Pritchard (1969) 550-553; Scramuzza (1959) 242-247; 255-260.

the cultivation of wheat was actively encouraged by the Romans. In the preceding 60 years, the Sicilians amassed wealth and slaves and their economic activity shifted to pastoralism. After the First Servile War, the Romans sent the consul Rupilius who expelled the ranchers from their *latifundia*, and resettled small-medium cultivators to increase grain production. Another 60 years later, large estates, now devoted to growing grain, again dominated the countryside.⁵⁸ Livy, Diodorus and Cicero focus predominantly on Roman exploitation and how Roman involvement was detrimental to Sicilian agriculture. This has given rise to a prevailing pessimism in general studies of Republican Sicily, not only economic studies. This pessimistic picture corroborates with the perception of Sicilian history as a series of conquests. Influential Italian historians like Mazza, Coarellia and Manganaro have placed the Romans among the Phoenicians, Greeks, Vandals, Arabs, Normans, Swabians, Spaniards and Italians. A similar sentiment was expressed quite literally by Pritchard: ‘To Sicily Roman Rule to a great extent meant merely the replacement of one overlord by another’.⁵⁹ The role that Sicilians themselves played in their economy requires reconsideration, especially in the Republican period.⁶⁰

The primary problem is clear: a failure to incorporate archaeological evidence and consequently the characterization of Republican Sicily as an exploited region with a declining economy. It is only recently that scholars like Prag and archaeologists like Wilson have started to refute the pessimistic conception of Republican Sicily. This includes venturing beyond generalisations and appropriating regional differences.⁶¹

I.1c. Recent developments

The most recent economic study of Hieronian and Republican Sicily is the doctoral dissertation of Walthall. He provides an excellent coverage of the archaeology of Morgantina, which is one of the best documented sites on the island. However, three problems described above can be found within Walthall’s dissertation. The first is the problem of overgeneralization found in traditional studies. Walthall’s archaeological analysis of Hieronian Morgantina is both extensive and impeccable, but the conclusions are projected onto the rest of (eastern) Sicily. Prag has already stressed the importance of local differences, and in this thesis I will demonstrate that generalizations prove difficult as regions within Sicily vary ecologically, agriculturally and politically. The second problem also pertains to

⁵⁸ Toynbee (1964) 210-227; 313-331.

⁵⁹ Pritchard (1970) 352.

⁶⁰ Prag (2009) 131-134; 136-137; Ceserani (2000) provides a well-written overview of the idiosyncratic nature of the historiography.

⁶¹ Prag (2003); Prag (2007c); Wilson (2013).

overgeneralization, but this time chronologically. Conclusions drawn based on the Hieronian period are projected onto the Roman Republican, which entails a failure to consider the determinative politico-economic contexts. Besides, as will become evident in the following chapters, Morgantina's situation between 211 and 44 B.C. is far from typical. The town was severely punished by the Romans for defection from their alliance in the Second Punic War, leading to rural and urban decline. This contrasts heavily with Morgantina's prosperity before Roman conquest. As such, Walthall conforms to the pessimistic but false representation of Republican Sicily.

Thirdly, Walthall uses NIE as the interpretative model for the archaeological evidence. Walthall's primary aim here is to demonstrate that Hiero's tithe stimulated trade and market integration among his subjects. Something of a paradox exists in his conclusions, as initially he stresses that:

'It is clear that from the perspective of the royal administration the ultimate goal was to facilitate the efficient assessment and collection of tax-grain. The coincidental developments in market integration and economic exchange witnessed by the communities in southeast Sicily were just that—coincidental.'⁶²

But later on he argues:

'According to my model, Hieron's activities as a major grain supplier generated interest in Sicilian grain and lead to increased trade relations with foreign markets and the merchants who supplied them. Foreign demand for grain, particularly the *triticum durum* grown in Sicily, was likely to have been inelastic, considering the needs of the Mediterranean's population as a whole. By encouraging merchants to purchase grain at Syracuse, the Hieronian policy fostered market participation of others who possessed surplus grain by strengthening ties to the agents supplying Mediterranean-wide markets.'⁶³

In my view, this represents the problem of using NIE as an interpretative model: it takes socio-political factors into consideration, but in the end the reasoning remains strictly commercial. The main argument is that the lowered transaction costs associated with tithe collection stimulated market integration and market participation among all orders of society,

⁶² Walthall (2013) 141.

⁶³ Walthall (2013) 147.

as well as an increase in production.⁶⁴ To be fair, Walthall does pay attention to the negative sides of Hiero's tithe, by pointing out that it could have had worse effects on small farmers than on wealthy landholders. Also, he acknowledges that market participation among poor farmers may have stemmed more from compulsion or necessity than being of a voluntary nature.⁶⁵ Still, the basic premise is one that sees the ancient man as a commercial man and supposes that if transaction costs are low enough, development of proto-capitalism will follow naturally. In my own view, Walthall's observations hold true for only certain socio-economic classes, but not for the peasant class to which most farmers belonged.⁶⁶ The elite too is presented as an economically rational class – Hiero included. Hiero's policy of monetary standardization is observed as a means of increasing commerce by decreasing transaction costs in his kingdom. I fail to see why Hiero found this necessary, considering the tithe was collected in kind. A better explanation for monetization is royal propaganda, a widespread practice among Hellenistic monarchs, as well as the reduction of civic autonomy among Hiero's client cities. The fact that cities started minting coins again when (some) local autonomy was restored under Rome indicates political motivation rather than economic.⁶⁷ Walthall argues that Hiero sold most of his tax-grain, but evidence indicates that most of the time Hiero chose to gift his grain foreign powers, most famously to Rome and Carthage, as a way to safeguard his kingdom while increasing his prestige.⁶⁸ Still, after having sold grain, Hiero did not invest to increase his future income but rather in political ventures. A good example is the *Syracusia*, which was possibly the largest ship constructed in antiquity, completed in 242 B.C. After making only a single venture, Hiero gifted the ship to Ptolemy III Euergetes of Egypt.⁶⁹

Finally, the use of Thompson's survey report on Morgantina (see II.3c) serves only to corroborate Walthall's conclusions, whereas I feel primacy should have been given to this report.⁷⁰ As the survey affords insight into settlement patterns, it elucidates where and how the grain in question was actually grown. Walthall draws upon the report to note an increase

⁶⁴ Walthall (2013) 183-184.

⁶⁵ Walthall (2013) 173-174; 178-179.

⁶⁶ Walthall (2013) 166-167: 'This is not to say that small-scale farmers could not produce surpluses as well. Ethnographic research conducted by Mahir Şaul in Burkina Faso has shown that wheat farmers with less than ten hectares of land under cultivation were capable of producing a disposable surpluses of up to 50% of annual production.' However, 10 hectares was not considered a small scale farm in antiquity, cf. I.4c and II.3.

⁶⁷ Walthall (2013) 154-160; 197-198.

⁶⁸ Walthall (2013) 130; 142-145; Livy, 21.49-51; 22.37; 23.15.5; 23.21; 23.38; Polybius 1.16; Carthage and Massinissa (king of Numidia) did the same after Hiero's death, see Livy 42.64-70; 43.3.9; 43.6.3; Garnsey (1988) 187-188.

⁶⁹ Athenaeus 5.40.

⁷⁰ Thompson (1999), see II.3c.

of (permanent) sites due to the tithe administration. However, Thompson indicates the possibility that agricultural growth was due to the more secure politico-military situation established under Timoleon (338 B.C.), Hiero and Rome (263 B.C.).⁷¹ This is why it is crucial that the scope of AE-studies should not become narrowly focussed on commercial links, as ancient economies were mainly subjected to political developments. Having now charted which pitfalls to watch out for, a more satisfactory methodology can be constructed.

I.2. Methodological Framework

I.2a. Balance of the sources

The same problem lies at the heart of both recent AE scholarship and the traditional studies of Republican Sicily: an unbalanced usage of sources. But within NIE the literary (cultural-ideological) dimension is neglected whereas for Republican Sicily it is the archaeological (material) dimension that remains understudied.

It is of utmost importance that conclusions drawn from archaeology and literature are constantly compared to each other. Sicilian history is a prime example of how a lack of comparison leads to a distorted image, as the main works were written when archaeological excavations in Sicily were either non-existent or in their infancy. Even though Sicily has known a lot of archaeological activity in the last four decades, only a small part of the reports produced are incorporated into general works on Roman history.⁷² I will offer a counter to the traditional account by adopting a sceptical attitude towards Diodorus' account of the Servile Wars and Cicero's Verrines. Here I will give primacy to archaeology in determining the nature of the Sicilian economy, as these provide an indication without moralistic distortion. Still, dismissing Diodorus and Cicero completely would also distort the balance of evidence so their accounts will be incorporated. But to attain a picture closest to ideological truth, scholarly literature on rhetorical, ideological and other distortions in their works must be consulted when. Literary works of a more historical or geographical nature (Livy, Plutarch, Polybius, Appian, Strabo) will serve another purpose, but will be similarly critically examined as these are no less prone to moralistic distortion and anachronism. The utility of these will be to substantiate the rough chronologies of archaeological evidence and arrive at more precise

⁷¹ Diodorus 16.66-16.90, esp. 16.82.

⁷² This is because these publications remain confined to a niche of scholars and are mostly written in Italian. Scholars like De Angelis and Wilson try to combat this, not in the least in their overviews titled *Archaeology of Sicily*, which appears roughly every 5 years in *Archaeological Reports*; e.g. De Angelis (2007, 2012). See also Thompson (1999) 43; Bejor (2006).

chronologies. The city of Centuripe (II.3a) serves as the best example here. Many sites in its survey could not be dated accurately, but as it is often mentioned by ancient authors⁷³, a more accurate chronology of its agricultural growth will be established.

Within the broader field of AE, the opposite occurred: literature has taken a backseat to archaeology. Giving primacy to archaeological evidence in itself is not wrong, as this will be required to nuance the traditional historical narrative of Republican Sicily. But due to the widespread adoption of NIE for interpretation, archaeological evidence has become disconnected from literature. This problem is best exemplified in the use of proxies, large datasets created by combining results of many smaller studies. Proxies of shipwrecks have become central to the AE debate over the last years. It is a matter of interpretation: if a certain period yields more shipwrecks than those preceding it, it is tempting to infer an increase in trade. But these increases are just as likely to represent an increase in state redistribution. On a more basic level, it could simply mean that shipwrecks belonging to certain period are more likely to be discovered than that of others.⁷⁴ Proxies can only produce valuable generalized information when the proper historical context is duly taken into account, and this context should be derived from the literary sources. This is why I will base my interpretative framework on the literary sources – this will be justified further in the next section (1.2b). Proxies have often been utilized in attempts to estimate (changes in) the average GDP of the Roman empire, either in grain equivalent or American dollars.⁷⁵ This kind of specific quantification has lost its connection to the sources. Working with average incomes obscures the complex and stratified structure of ancient economies.⁷⁶ To preserve adherence to the sources my analysis will be markedly qualitative, and I will attempt to quantify only when the sources allow it.

I find it striking is that a relatively recent field in archaeology is not fully utilized in economic analyses, namely: large scale archaeological surveys concerning settlement patterns and landscape or topographical archaeology.⁷⁷ Survey reports have been used in demographic studies⁷⁸, but they also give insight into how and to what extent the land was utilized – two determining aspects of an agricultural economy. Survey reports provide good insight in a

⁷³ Biondi (2002); Thucydides 6.94.3; Diodorus 13.83.4; 19.103.2; 20.56.3; 23.4; Cicero, *Verr.* 2.2.161.

⁷⁴ cf. Hobson (2015) 209-210; Scheidel (2009) esp. 48-49; Wilson (2014) esp. 148-155 on this phenomenon.

⁷⁵ e.g. Saller (2002); see Jongman (2006) 241-246 for more innovative use of proxies.

⁷⁶ Millett (2001) 20.

⁷⁷ cf. Giamellaro et al. (2008), 134-146.

⁷⁸ e.g. Morley (2001); Laurano (2011); De Ligt (2012) 257-271 provides an overview of surveys in Central Italy and their usage in the construction of demographic models.

more direct manner than proxies, especially with respect to regional differences.⁷⁹ Therefore these will be drawn upon in chapter II, and linked to ‘traditional’ urban archaeology.

Epigraphy has also proven its worth as a provider of accurate source material for writing socio-economic history. Unfortunately only few inscriptions from Republican Sicily survive.⁸⁰ Those that exist prove highly informative and will be incorporated into my analysis.

A method for overcoming the problem of scarce evidence is comparative history. It has been drawn upon extensively within AE studies, but often in a manner that I deem unjustifiable.⁸¹ This is the case when the use of comparative sources goes hand in hand with the assumption of universal conditions among pre-industrial societies that have not been conclusively proven.⁸² Because specific geo-temporal contextualization is a key aspect of my analysis, use of comparative history will be of a limited nature. In some cases, however, like drawing conclusions on the peasantry or ancient agriculture it is unavoidable.

A summary of my methodological approach is as follows: In I.3 an interpretative framework will be constructed based on literary sources. Then archaeology of Sicily will be considered (II) before integrating ancient accounts of Republican Sicily (III-V). In comparison between the latter two, primacy will in most cases be given to archaeology but in other cases literature serves to clarify archaeological chronology. The following section provides a theoretical base for my interpretative framework.

I.2b. Re-embedding the economy

Finley’s assertion that ancient authors do display knowledge of economic terminology (production, labour, capital etc.) but only use these terms in the literal sense remains entirely relevant. The lack of abstraction speaks for itself here: the ancients did not view the economy as an autonomous sphere, whereas modern market economies are self-regulating systems with laws of their own.⁸³ Cato’s *De Agricultura* exemplifies this very well, and sits chronologically within this dissertation’s period under investigation (ca. 160 B.C.). The agronomical works of Cato, Varro and Columella are also the closest ancient parallels to economic treatises. Cato’s book presents economic knowledge of labour, investment, prices and connected to that supply and demand and as such seems to display economic rationalism. However, Cato’s concept of labour is very different from the modern concept: he discusses when and how to use slaves and when to hire free labourers. Cato’s valuation of a good *vilicus* is that he ‘must show good

⁷⁹ Laurence (2012) 4-12; 16-17; 55.

⁸⁰ cf. Prag (2010) esp. 305, on the state of Sicilian epigraphy.

⁸¹ esp. Silver (2007) 197-202; e.g. Saller (2002) 258-259; Walthall (2013) 166-167; Temin (2012) 195-219;

⁸² e.g. Finley (1999) 177-178 explicates this pertaining to market integration.

⁸³ Finley (1973) 21, see also Polanyi (1957) 70-71.

management' but also that 'he must not assume that he knows more than the master'. It is revealing is that when buying building materials, Cato states that:

'The price of this work from an honest owner, who furnishes duly all necessary materials and pays conscientiously, one sesterce per tile.'

The price is thus dictated partly by the desire to prove oneself honest, inferring that socio-cultural mechanisms of price determination operate together with market mechanisms. Equally illustrative is another of Cato's remarks: 'The master should have the selling habit, not the buying habit.' Practically, this entailed producing all the needs of the landholder and his staff on the estate itself. While it would be more profitable to devote the entire estate to olive or wine production, Cato denotes that ideally estates should be devoted to no less than ten modes of cultivation, including a wheat field and a wood lot. The goal is a self-sufficient estate rather than a highly profitable estate, as this eliminates the dependence on the market that Cato condemns in the opening of his treatise.⁸⁴ While Cato's views were not necessarily representative of the Roman economy as a whole, he does display the peculiarity and paradoxes inherent in it. (Neo-)modernists deny this as ideological (elite) propaganda, and as such ignore the literary dimension. (Neo-)primitivists denote the socio-cultural considerations as stifling the growth of the market and therefore infer underdevelopment. Both primitivists and modernists only convey parts of historical truth. The Roman economy was socially embedded, but not underdeveloped; its scale was unprecedented, but its structure very different from that of modern economies. The primary difference I perceive here is one of economic motivation: (proto-)capitalism was not the only driving force behind economic growth in antiquity. It is within modern growth-theories like NIE and Development Economics. That is why these are inapplicable without incurring anachronisms.

Polanyi's theory of substantivism (i.e. the socially embedded economy) is more suited, because it was not just commercial considerations that guided economic activity – as exemplified by Cato. I do not deny the existence of ancient markets here by any means, but their determining role and institutionalized nature have been overstated. Polanyi identified two other modes of transferring goods besides market-exchange: reciprocity within social groups and (state) redistribution (see I.3b). Polanyi based his theories on anthropological studies of still existent societies with socially embedded economies, like the Trobriand Islanders of Western Malanesia. This anthropological basis proved necessary but problematic

⁸⁴ Cato, *Agr. Praef.*; 1.7; 2.7; 3.2; 10-11; 14.3; 22.3;.

for studying Roman history. Polanyi stated that the Trobriant Islanders had no real concept of material wealth and his characterization of their society is rather egalitarian.⁸⁵ Cato, upon stating that a respectable man needs a good storeroom to store his produce in anticipation of higher prices, clearly displays the concept of material wealth.⁸⁶ We know Roman society to have been highly stratified economically and ideologically. I will address this deficit in I.3c.

What makes substantivism highly suited for studying ancient economies, despite my criticism, is the presumption that not just the economy but all spheres that constituted past societies were integrated: the social, cultural, scientific, political, military, religious and economic aspects. Modern (Western) societies are highly institutionalised, which is why the integration of spheres is lost to modern (economic) mind-sets and interpretative frameworks. This is particularly pressing for studying Roman Republican history, as the integration of spheres found its culmination in the elites of the Republic. It was expected to be active in each of these areas: men like Cato were landholders (farmers?), social patrons, writers, generals, magistrates, governors and moral authorities. The distinct administrative structure of the Republic even blurred the lines between public and private politics⁸⁷ as, for instance, it relied in part on the willingness of the elite to invest their private funds. This is why I have adopted substantivism as base for my interpretative model, which will be set out in full in the next paragraph.

I.3. Interpretative Framework

To be able to pertain to the broad AE debate, the methodological considerations set out above remained rather general. This paragraph will make concrete what three key concepts my substantivist analysis will draw upon. This is both an interpretation and an adaption of Polanyi's model with the aim of gearing it specifically towards the study of the Roman Republican economy. Food history offers an alternative to a strictly commercial perspective (I.3a). Patronage and euergetism demonstrate how Polanyi's modes of exchange operated in practice (I.3b). The necessity of treating these two fields at some length stems from the difficulty of valuing these from a modern (economic) perspective. By employing a synthesis of these two, the varying economic perspectives and strategies of the social classes become apparent (I.3c).

⁸⁵ Polanyi (1944) 45-52; Polanyi (1957) 68.

⁸⁶ Cato, *Agr.* 2.7; 3.2.

⁸⁷ Andreau (2007) 85; cf. Terrenato (2014) for an apt demonstration of the private agenda of senatorial magistrates.

I.3a. Food and ideology

I have selected food as the main commodity and concept through which to study the Sicilian economy, rather than money or any other commodity. Rome is regarded as one of the most advanced pre-industrial societies, especially when scholars focus on law, literature and politics. This makes it easy to forget that the absolute majority of people was engaged in small scale agriculture.⁸⁸ Roman literature is to blame for this, as it was the domain of the elite and not of the peasant farmer. Another contributing factor is the large disjunction between modern and ancient conceptualizations of food. The post-industrial West enjoys an absolute overabundance of food and there now exists an unparalleled disconnection between production and consumption. Food is, therefore, too often regarded as simply a tradable commodity in AE studies.⁸⁹ A food perspective is therefore very useful to AE studies, as it offers a historically sensitive approach to assessment of economic growth or decline. Food is the one determining factor in Roman economies: any economic growth had to start with an expansion of food production – agriculture. No other sectors of the economy, like manufacturing, transport, commerce and finance, could grow without the expansion of agriculture as there would be no way to sustain the people working in these. However, most of the food was eaten by those who had cultivated it, and small margins of surplus rendered the stability of food supplies precarious.⁹⁰ This is why urbanisation could only occur after a proportionally much larger expansion of agriculture. It was rare for ancient regions to have more than a tenth of the populace living in cities. Late Republican Italy attained an unprecedented proportion of urban residents due to the growth of the city of Rome, which was in large part due to Sicilian grain. The importance of a food-perspective to ancient economies is stressed by Garnsey. He worded it succinctly: ‘Food comes first. No food, no life’, and stresses a ‘social context where food was a relatively scarce, highly valued and unequally distributed commodity’. Garnsey has demonstrated that while famine was relatively uncommon in antiquity, food crises occurred with high frequency.⁹¹

We see this precariousness of food reflected in Roman literature, but in a paradoxical manner. Economically, food was the main economic driver: it dominated the producing, consuming and transporting sectors.⁹² For instance, any trader in antiquity who undertook large scale enterprises would probably end up trading in grain, wine and olive oil. But

⁸⁸ Erdkamp (2004) 12 gives 80%, but this is still a low estimate.

⁸⁹ e.g. Scramuzza (1959); Roselaar (2010); Walthall (2013); Temin (2012) but also Rosenstein (2008).

⁹⁰ Garnsey (1999) 22-24; Garnsey (1988) esp. 3-39.

⁹¹ Garnsey (1999) 1-6 draws upon theories of famine by A. Sen. Garnsey (1988) provides an overview of recorded food crises and famines in Greco-Roman history.

⁹² Erdkamp (2004) 12-13.

ideologically, the literary sources demonstrate a guarded ideology towards the (food) market, especially when one relied on it for his livelihood. The elite stood at the centre of the paradox: on the one hand they, as (absentee) landholders were large producers of food for the market. On the other hand the elite, as writers, reflect the precariousness of food and stress the importance of self-sufficiency. They value self-sufficiency over profit maximization and reliance on commercial exchange, which they sometimes even expressly condemn. In light of this, the general praise of agriculture is unsurprising. I have already demonstrated this in I.2b based on Cato. His manual begins with the irrefutable wisdom of the ancestors. Trading and usury are to be condemned; agriculture is the only honourable economic activity, and those who produce their own food make the sturdiest soldiers.⁹³ This notion was not ungrounded, as it had been the peasant-citizen-soldiers who had won the wars of the Republic: their self-sufficiency was a precondition for their place in the ranks. Cicero provided a parallel: ‘Of all revenue-producing activities none is finer, more productive, more agreeable, more worthy of a free man than agriculture.’⁹⁴ Another can be found in the Elder Pliny. He nostalgically looked back upon a past where names, proverbs and socio-political institutions were shaped by agriculture alone.⁹⁵ He made a strong case for self-sufficiency and lamented Italy having lost that:

‘The consequence was, that when the Roman manners were such as these, the corn that Italy produced was sufficient for its wants, and it had to be indebted to no province for its food; and not only this, but the price of provisions was incredibly cheap.’⁹⁶

Pliny thus idealized very low food prices whilst he, as a landowner and producer of food, would have benefited from exactly the opposite. Pliny identified the problem to be the disconnection between Romans and their agriculture. The Earth no longer produces the bountiful harvests of the past, now that she was no longer cultivated by the hands of citizens, soldiers and even generals of old but rather by ‘slaves whose legs are in chains, by the hands of malefactors and men with a branded face!’⁹⁷ Equally striking is his hierarchy of grains. He asserted the dominance of Italian wheat over provincial wheat, be it from Egypt, Sicily or

⁹³ Cato, *De Agri Cultura*, Praef.

⁹⁴ Cicero, *Off.* 1.150-151.

⁹⁵ Pliny, *Nat.*, 18.3.

⁹⁶ Pliny, *Nat.*, 18.4.

⁹⁷ Pliny, *Nat.*, 18.4.

elsewhere.⁹⁸ This assessment is a cultural one rather than an economic one, as Egyptian and Silician wheat were more productive than Italian, but importing it entails a loss of self-sufficiency and exposure to the risks of commerce and shipping.

Rather than merely stressing the need to secure a steady food supply, ancient elites also took this task upon them within communities. It entailed social prestige and status to be able to provide others with food – an extension of self-sufficiency. Concrete evidence for the ancient conception of the precariousness of food can be found in the grain funds (*sitonai*) of ancient cities. Urban residents suffered much more from food crises than rural peasants, as food had to be brought in from elsewhere. Erdkamp notes that grain funds were an expression of distrust towards the market, and as such that food supplies were so essential that it had to be safeguarded from the market's fluctuating nature.⁹⁹ Citizens could chip in communally to procure grain for supplying the *sitonai*, but often these were supplied through benefactions of wealthy individuals.¹⁰⁰ The mechanisms through which these rich men engaged in benefactions will receive further consideration in the next section.

I.3b. Mechanisms of non-market exchange

Food was thus central to the Republican economy, but most was consumed by those who had produced it. The surplus that remained was to be transported to cities or other regions, either nearby or distant. One mechanism through which this happened was market exchange, which requires no explication as a vast corpus on trade in the ancient world already exists. But Polanyi's two other modes of exchange, reciprocity and redistribution, have been underrepresented.¹⁰¹ What separates these from market exchange is the motivation behind the transfer of goods or wealth. The motive behind market exchange is economic: to turn a profit; to gain materially. The motive behind reciprocity and redistribution can be either social or political: to confirm or strengthen social bonds or gain status, power or obedience. Small scale reciprocity and redistribution occurred on a daily basis. For instance, within households, among friends and family and (small) communities. Ancient society was a gift-giving society, among the poor and rich alike.¹⁰² On a larger scale, the institutions of patronage and euergetism were the ancient embodiments of non-market exchange.

Patronage was a voluntary personal connection, based upon reciprocity between two

⁹⁸ Pliny, *Nat.* 18.12.

⁹⁹ Erdkamp (2008) 109; Garnsey (1988) 1516.

¹⁰⁰ Walthall (2013) 101-102; Erdkamp (2008) 111-113 makes a strong case of the ubiquity of *sitonai*.

¹⁰¹ cf. Erdkamp (2008) 109, describes the consensus among scholars on rejection of euergetism as patronage within economic study; cf. Garnsey (1991) 167 notes that Veyne's thoughts on economic matters have been dropped in the translation of *Le Pain et le Cirque*.

¹⁰² Gallant (1991) 41-45; 144-149; Garnsey (1999) 30-32.

persons, of whom one enjoyed a higher social status. It is explained must concretely by Dionysius, who makes an effort to stress its antiquity:

‘He [Romulus] placed the plebeians as a trust in the hands of the patricians, by allowing every plebeian to choose for his patron any patrician whom he himself wished.’¹⁰³

Dionysius lists the following duties for patrons: to explain the laws, to take on a paternal role regarding money and monetary contracts and to back clients in lawsuits. The duties for clients were to aid their patron financially: when he had to provide dowries for his daughters, when he was captured and ransomed, when he had to pay fines following a lawsuit and when he incurred private expense during a magistracy.¹⁰⁴ Patronage was known to Romans as *amicitia*, which describes both relations between socio-economic peers (often ambitious younger men with powerful older men) and between commoners and elite members.¹⁰⁵ This institution is representative of the integration of spheres in the Roman world, as it could entail political support, legal backing, social connections, artistic endorsements and economic transfers. Wiedeman has demonstrated how the incorporation of patronage into AE research can provide the historically sensitive insight that NIE could not. It signifies a balance between primitivism and modernism. Wiedeman makes a case for the Roman elite’s need for quantification (e.g. of magistracies held) and accounting, when one acquired multiple far-flung estates. This has often been confused by modernists to be akin to early modern developments in banking and financial management, which originated in the context of sixteenth-century long-distance trade or shipping. No large formal banking system existed in Rome, and for elite members it was exceptional to visit the *argentarii* on the forum for a loan. Instead, it was within the ‘primitive’ contexts of family and patronage that the provision of financial services originated – no matter how sophisticated. *Amicitia* is built upon *fides*, interpersonal asymmetrical trust, rather than anonymous business arrangements. This led clients to store their savings in the safer *domus* of their patrons, and gave a patron the right to call upon his freedmen for providing the dowry of his daughter.¹⁰⁶ Wiedeman demonstrates how patronage illuminates the different mechanisms through which financial services grew in ancient and (early) modern economies.

Euergetism is defined extensively in Veyne’s *Le Pain et le Cirque* (1976, trans. 1990).

¹⁰³ Dionysius 2.9.

¹⁰⁴ Dionysius 2.10.

¹⁰⁵ Wiedeman (2003) 15.

¹⁰⁶ cf. Cicero, *Offic.* 2.56.

Essentially, Veyne conceptualized euergetism as ‘private liberality for public benefit’¹⁰⁷, but not necessarily generosity. It is at once performed willingly but also expected or even imposed by the community. Central is the personal nature of the giver and the impersonal nature of the receivers, as it was directed at the collectively of citizens. Veyne as a highly polemic writer put continual emphasis on the exotic and unique nature of euergetism, which cannot exist outside of the context of Greek and Roman cities between 330 B.C. and ca. 300 A.D. and is incomparable with any modern practice.¹⁰⁸ Veyne links euergetism with elite competition, but keeps it distinct from political and economic processes. Instead, it was an expression of social superiority and social distance. I will demonstrate that it did in fact have consequences for the Republican political economy, but Veyne’s attention to the peculiarities of ancient societies is admirable.¹⁰⁹ For the Republican oligarchs, Veyne states that euergetism entailed an increase in political honor: *dignitas*. He stresses that this worked only for the small privileged class of electors (of magistrates), and denies the economic or political implications of benefactions to the plebs. An illustrative passage is worth quoting:

‘The truth is that rationalism makes us deny the obvious. The oligarchs had no rational need to make themselves popular. They did not have to be loved by the plebs in order to hold onto their power. But they could not help themselves – they wanted to be loved. Could it be that politics is not what people think it is, or not only what people think it is?’¹¹⁰

Both patronage and euergetism entail economic transfers, often in the form of food. The practices should not be confused with poor relief, which was a Christian invention. The recipients were always citizens, and not necessarily poor – the division between recipients and non-recipients was thus political and not economic. Patronage concerning food transfers took two forms: *sportulae* (small handouts) and patron-client dining. Eating together served to enhance *fides*. Euergetism led to large scale food distributions to the entire citizen body or public banquets.¹¹¹ Concerning elite motives behind benefactions, it is possible to distinguish between optimists and pessimists. Terrenato is exemplary of the optimists. Observing Roman society from a long-term perspective and arguing for continuity of interdependence between peasants and aristocrats, he stresses that the deep social bond was not as exploitative as it is

¹⁰⁷ Veyne (1976) – trans. Murray & Pierce (1990) 10.

¹⁰⁸ Veyne (1976) esp. 42-43.

¹⁰⁹ cf. Garnsey (1991) 167-168; Lomas & Cornell (2003) 1-4.

¹¹⁰ Veyne (1976) – trans. Murray & Pierce (1990) 261.

¹¹¹ Stein-Hölkeskamp (2015) 89.

often made out to be. Deriving surplus from dependents and redistributing it among them was a sort of paternalistic of elites. *Sportula* were a (late) Republican reflection of this.¹¹² This paternalistic consciousness among elites is also noted by Erdkamp, in his work on urban food provisions.¹¹³ More pessimistic is Stein-Hölkeskamp in her presentation of patron-client dinners. She argues that these were essentially rituals, deeply rooted in the collective consciousness of the upper class, that facilitated the client's acceptance of the enormous inequality of wealth and power. For patrons, it was a careful balancing act: they had to remain superior, but not so much as to betray their factual total dominance.¹¹⁴ Garnsey too embraces a pessimistic perspective, but with a different emphasis. He notes that food crises threatened the dominant position of the elites, especially in the cities, and it was therefore in their best interest to prevent these. He presents it as not necessarily exploitative, but having a marked potential for exploitation.¹¹⁵

Euergetism and patronage provided the main 'destination' for the wealth of elites outside of the market. During the Republic, patronage and euergetism operated at the highest (state) level and were ways to utilize the economy for political gain, thus serving as stimulants for economic growth. The institutions reflect the elite's ideology of the precariousness of food supply and serve as sources of prestige as one could employ his wealth to provide sustenance to others. The next section will clarify what implications this elite's ideology had for ancient economies by describing it to their economic outlooks and strategies. Beforehand, the outlooks and relations of the four other socio-economic strata will require scrutiny.

I.3c. The plurality of the ancient economy

A singular model for studying ancient economies will always lead to a distorted representation due to overgeneralization. I identify five main classes. Their economic perspectives will be structured along the lines of their relation to food, as outlined above. Relations to food divide society existentially, socio-economically and culturally.¹¹⁶

The first class is that of slaves. The number of slaves in the ancient Mediterranean has always been substantial, but increased dramatically during the middle and late Republic.¹¹⁷ Slavery was heterogeneous institution, which complicates hypothesizing about them as a collective. Still, in their relation to food they must have been quite homogenous; they were

¹¹² Terrenato (2007) 14-16; 20-21.

¹¹³ cf. Erdkamp (2000) 53; 57; ; Erdkamp (2008) 109.

¹¹⁴ Stein-Hölkeskamp (2015) 90-92.

¹¹⁵ Garnsey (1999) 2; Garnsey (1988) 58.

¹¹⁶ Garnsey (1999) 6.

¹¹⁷ cf. Frank et al. (1933) 100-102.

chiefly reliant on their master for it. Slaves were thus as far removed from self-sufficiency as possible. This is consequently one way of explaining the Roman practice of selling oneself or one's children into slavery. 'Contractual' debt slavery was thus a means to ward off starvation, but socially highly undesirable. Garnsey notes that in case of food crisis slaves were among the last to starve, as their masters had invested in them and as such would keep them fed.¹¹⁸ Some slaves had a better position than others. Urban household slaves often enjoyed better status than slaves occupied in agriculture or mining. This better position could entail a small amount of pay, and Wiedeman has shown that 98% of surviving inscriptions mentioning manumission of slaves pertain to urban slaves, rather than agricultural slaves.¹¹⁹

The second class enjoyed more social standing than slaves, but at the price of a more precarious relation to food. Wage labourers, be they rural or urban – categories that must have overlapped¹²⁰ – were reliant on the market for their sustenance. The availability of income was dictated by the labour market, and the price of food by the commodity market. This was problematic, because large fluctuations in food prices followed annual fluctuations in food stores.¹²¹ Within a society that idealized landholding, self-sufficiency and risk-minimalization, their position was far from ideal. Cicero condemns wage-labour as highly undesirable: 'the very wage they receive is a pledge of their slavery'.¹²² Cicero here equals dependency on the market to a kind of slavery. The rural sector provided periodic employment as harvests of different crops occur at different times in the year.¹²³ There was no guarantee of work in cities. A major source of temporary employment here was the conspicuous consumption and euergetism of the elite, predominantly major building programmes (e.g. after the Social War¹²⁴) and large entertainment schemes. Euergetism and patronage did not only provide employment for landless labourers, but could also entail food or monetary distributions. The proletarian labourer-class was most reliant on these for their survival. The dramatic growth of this class in Rome in the second and first centuries B.C. therefore incurred ongoing expansion of the scale of patronage-euergetism (see IV.3 and V.1

The third class, and by far the largest, was that of the peasantry: free landholders and tenant farmers who occupied small plots and farmed at or around subsistence level. This is also the class to which the largest group of citizens-soldiers belonged, be they Roman citizens

¹¹⁸ Garnsey (1988) 25; 32-34.

¹¹⁹ Wiedeman (1985) 162-165.

¹²⁰ cf. Frederiksen (1976) 350-351.

¹²¹ Garnsey (1999) 33-34; Erdkamp (2004) 147-148.

¹²² Cicero, *Off.* 1.150.

¹²³ cf. Gallant (1991) 36-37.

¹²⁴ Wiedeman (2003) 21; Lomas (2003) esp. 30-31.

or citizens of Sicilian communities. Landholders enjoyed better status and food stability than tenants. While tenants could also devise their own subsistence-strategies, their claim to their land was weaker and they lost a part of their harvests to their landlord. Concerning peasant agriculture, Garnsey summarized:

‘The survival of the peasantry depended upon their success in following a low-risk production strategy, and in establishing and making the most of social and economic links with their equals and superiors in society.’¹²⁵

This strategy was in large part crop diversification or polyculture; cultivating a range of different crops on a small scale. Specialization and monoculture would entail a higher efficiency and a higher total output, but if that one crop failed the family would be ruined – this is specifically what deters peasants from producing for the market on a larger scale. The production of profitable crops was generally not a viable option, as both vines and olive trees required years before they became productive.¹²⁶ Garnsey estimated the basic plebeian plot in Italy during the Republic to be ca. 5-10 *iugera*, either just enough or too small for the sustenance of a family, which was thus also dependent on other employment.¹²⁷ Typical of Mediterranean farming was owning not one continuous plot, but several scattered ones as to protect one’s subsistence from local ‘mini-disasters’ like hailstorms.¹²⁸ Erdkamp adds to this quest for physical survival a quest for ‘social survival’: retaining their land and as such their status as either non-dependent smallholders or semi-dependent tenants. Social survival is the reason why peasants, even if their physical needs were met, focussed on increasing their stores and self-sufficiency rather than putting their produce to market.¹²⁹ To prevent food crises and shocks occurring from unpredictable harvests, peasants developed several other strategies. The first has already been outlined above: as clients to elite patrons they could acquire *sportulae* in emergencies. Secondly, peasant farms were not wholly self-sufficient individually, but they probably were at a community level. Reciprocal exchange was employed to supply temporary shortages. Reciprocity between members of geographically separated communities was a means to prevent food crisis in case of local crop failure. Gallant has made a strong case for the ubiquity of communal storage among peasant

¹²⁵ Garnsey (1988) 43.

¹²⁶ Gallant (1991) 36-41.

¹²⁷ Garnsey (1988) 46; Garnsey (1998) 99; Brunt (1971) 194; Morley (2001) confirms this view based on surveys in Central Italy. However, others have argued that 5-10 *iugera* is plenty to support a family; cf. Roselaar (2010) 183.

¹²⁸ Gallant (1991) 41-45.

¹²⁹ Erdkamp (2004) 96-97.

communities, which also reduced food spoilage as stores circulate more often.¹³⁰ A final mode is market exchange, as self-sufficiency was the aim but not often reality. For several commodities peasants had to turn to the market. The peasantry focused on a regular income rather than a maximal income – akin to the literary attitudes of the elite. This similarity is due to the nostalgic literary *topos* of the citizen-peasant-soldier (‘the peasant-patriarch’) who laid the foundation for the rise of Rome.¹³¹ De Ligt noted that peasant families embraced the opportunity to send some sons of to war, as it relieved the pressure on the land.¹³²

The fourth class I identify is the most controversial in AE-studies: the commercial class. Downplayed by primitivists, this class regards food mainly as a tradable commodity. Modernists and those drawing upon NIE have overestimated the extent of this class. The commercial class is the only one with a marked proto-capitalist economic outlook, which signifies that the *goal* was accumulation of wealth, and they utilized their capital *mainly* to make productive investments to achieve this. I emphasize ‘mainly’, as this is what separates them from the elite, who also made productive investments but neither predominantly nor systematically. The category of ‘commercial class’ is an artificial one: there was no class consciousness among its heterogenous constituents. As such, they were diverse but did have one feature in common: a focus on the acquisition of wealth as they, in many cases, lacked access to political power. The most exemplary socio-political class here is that of *liberti*.¹³³ They accumulated wealth, economic power, as a substitute for political power – as Petronius’ satirical figure of Trimalchio demonstrates.¹³⁴ Freedmen were favourites of the elite (often their former owners) to employ as middlemen in commerce and finance, as they allowed the elite access into these low-status activities.¹³⁵ Several occupational groups are found within the commercial class: traders, shop-owners, shippers, craftsmen and middling commercial farmers.¹³⁶ Roselaar argued from survey data that well-off (commercial) farmers have been underestimated by studies on the Republic.¹³⁷ I concur, provided that the lines between them and the subsistence farmers should not become blurred, as evident in her own book¹³⁸ as well

¹³⁰ Gallant (1991) esp. 179-183; cf. Millett (2001) 24.

¹³¹ cf. Cato, *Agr. Praef*; Virgil, *Georg.*; Garnsey (1998) 94.

¹³² De Ligt (2012) 169; Roselaar (2010) 217.

¹³³ cf. Garnsey (1998) 245, on the easy relation of this middle class to food.

¹³⁴ Petronius, *Sat.*, 38; Garnsey (1999) 23-24.

¹³⁵ cf. Finley (1973) 59.

¹³⁶ Cicero, *Off.* 1.150-1.151 considers all of them vulgar to higher or lesser degree.

¹³⁷ Roselaar (2010) 182.

¹³⁸ Roselaar (2010) 204-205: in her assessment of the profitability of land in peasant farming she does not account for polyculture or the possibility of crop failure.

as Walthall's dissertation. Walthall's observations for the commercial class remain valuable: they functioned occasionally as merchants in marketing their surplus and could also buy and market that of their poorer neighbours in case of good harvests.¹³⁹ It is highly probable that commercial farmers employed slaves, rather than tenants as tenants generally practice polyculture, whereas slaves are more useful for specialized production.¹⁴⁰

The final class here is the elite; Roman senators, equestrians and municipal elites (in Italy and Sicily). Finley described their economic outlook aptly: 'they had a 'peasant-like' passion for self-sufficiency on their estates, however extravagant they may have been in urban outlays.'¹⁴¹ Estates provided their income, but along the lines of expense-minimisation rather than profit-maximisation. Confirmation can be found in Varro:

'For many have among their holdings some in to which grain or wine or the like which they lack must be brought, and on the other hand not a few have holdings from which a surplus must be sent away.'¹⁴²

Landowners could employ two modes of production: slaves for specialization and tenants for collecting rent.¹⁴³ A regular income was preferred to a larger but less stable income as to eliminate reliance on the market. Both the commercial class and the elite sought to enrich themselves, but what separates them is that elites did not invest their acquired capital to obtain more. Their mentality was acquisitive rather than productive.¹⁴⁴ The elite's relation to food was an easy one and to keep it such the elite kept large stores for themselves, to sell when it fetched a good price or to distribute as *euergetes* and garner political support.¹⁴⁵ Food was produced on estates or otherwise purchased with income from other activities. It is naïve to reject elite involvement in commerce and industry. The prime source here is Cicero, who as a *homo novus* was probably more involved with non-landholding enterprises than other senators. He illustrates the paradox between money-making and rejection of non-agricultural activities perfectly. Especially from his letters to Atticus it becomes apparent that he was indeed involved in economic activities that he condemned. But Cicero relates that the context of his commercial ventures was not impersonal business but rather *amicitia*. Besides, senators could not invest exclusively in lucrative ventures as they had to invest most of their profit in

¹³⁹ Walthall (2013) 148.

¹⁴⁰ cf. Frederiksen (1959) 112-113.

¹⁴¹ Finley (1973) 108-109.

¹⁴² Varro, *R.R.*, 1.16.3.

¹⁴³ Erdkamp (2001) 340.

¹⁴⁴ Finley (1973) 144; see also Erdkamp (2001).

¹⁴⁵ Garnsey (1988) 32; cf. Cato, *Agr.* 2.7.

landed property as to preserve their *dignitas*.¹⁴⁶ Legal evidence is the *Plebiscitum Claudianum* of 218 B.C.:

‘Flaminius was also hated by the senators on account of a new law that the tribune Q. Claudius had passed against the senate, a law which Flaminius alone of the senators supported, that no senator or senator’s son should have any ship of over 300 amphorae; this would suffice to carry grain from their fields: all gainful occupation on the part of senators appeared unseemly.’¹⁴⁷

This law was passed by Flaminius to steer away senators from personal gain during the Second Punic War and its effects were that senators remained traditional landholders in Italy, whereas Roman knights were the first to reap the benefits of the provinces – not in the least through trade and shipping.¹⁴⁸ In this sense, the Roman equestrians occupy a middle position between the commercial class and the senatorial elite. Atticus was at the same time a good and a bad example. This knight had extensive business ventures, including far-flung estates, shipping and most famously his financial and fiscal services (e.g. to Cicero). On the other hand he had no interest in publican activities, partnerships or political positions which were characteristic of the equestrian order.¹⁴⁹

Social mobility in the Republic proved difficult, but not impossible. The main bulk must have been slave manumissions and peasants moving into the commercial class. Other mobility existed between the commercial class and the elite. A twofold difficulty arises here. Firstly, the wealth requirements of 400.000 and 1.000.000 HS to join the equestrian and senatorial orders respectively maintained the gap between the commercial class and the elite. Columella stated that the net profit of 7 *iugera* of vineyard was at minimum 150 HS annually, but that this was the most profitable form of land use.¹⁵⁰ Frank has estimated, based on Cato’s manual, that a 200-*iugera* olive grove produced around 1600 HS annually.¹⁵¹ These calculations may present an idealized situation, as supply and demand were not taken into consideration and were generally badly integrated.¹⁵² It must have taken fortunate middle-class families several generations to join the elite orders. The second difficulty is related to

¹⁴⁶ Rauh (1986) provides good discussion and collection of sources on Cicero’s business friends.

¹⁴⁷ Livy, 21.63.

¹⁴⁸ Finley (1968), 130.

¹⁴⁹ cf. Nepos, *Att.* 6.2-6.4: Atticus turns down Cicero’s offer for a legateship in Cilicia; Rauh (1986) 8-10.

¹⁵⁰ Columella, *R.R.*, 3.3; the investment is 32.480 HS, interest (6%) is 1950 HS. At a yield of 40 *amphorae* per *iugerum* (which was low) one would gain 300 HS/*iugerum* *7 = 2100 HS - 1950 HS = 150 HS.

¹⁵¹ Frank (1933) 171-173: Investment = 460.000 HS, annual expense (incl. 6% interest) = 48.400. Annual income = 50.000 – 48.400 = 1.600 HS.

¹⁵² Rosenstein (2008); Erdkamp (2004) 143-205.

status: commerce, shipping and manufacture could provide greater income than farming but entailed a loss of prestige. Cicero and Cato rank these occupations lowest of all – as they entailed ‘enslavement’ to market fluctuations.¹⁵³ Livy makes mention of the state fining merchants for hoarding grain during a famine in 188-187 B.C., indicating further constraints on profit margins but also the undesirable status of traders.¹⁵⁴ On the other hand, inscriptions which honour merchants selling grain below market-price show that they in some cases also utilized their economic wealth for accumulation of socio-political prestige.¹⁵⁵ When sufficient wealth was thus accumulated, members of the commercial class seek to acquire more political influence and adopt elite-like economic activities (absentee landholding) and utilitarianism. This is why Petronius’ satirical figure of Trimalchio was obsessed with owning estates and being self-sufficient. Other evidence here are inscriptions that honour traders who sold grain below market prices, and effectively acted as *euergetes*.¹⁵⁶ When these obstacles were overcome, entry into the elite was possible, as the *novii homines* demonstrate.

I.4. Conclusion

There is much potential for error and faulty interpretation inherent in the study of socio-economic development of Sicily under the Republic. This is due to the neoliberal paradigm (Development Economics and NIE) having become dominant in AE scholarship but also due to the traditional pessimistic narrative on Republican Sicily that is based almost exclusively on the writings of Livy, Diodorus and Cicero. To prevent these problems, I offer an alternative methodological and interpretative framework, which consists of three parts. Firstly, a balance between literature and archaeology has been established to aid in refuting and nuancing the traditional narrative on Sicily under the Republic. The structure of this thesis will facilitate this as well: an archaeological dataset will be established (chapter II) which will subsequently be drawn upon for comparison and synthesis with the literary sources (chapters III-V). Secondly, an interpretative framework was constructed in this chapter that is based on substantivism, but subsequently adapted to facilitate the study of an economy during the Roman Republican period. The interpretative framework that was constructed in this chapter is based on the literary sources, to prevent having to draw upon the external economic theories of NIE. The key themes upon which the framework is based are food history, non-

¹⁵³ Cato, *Agr. Praef*; Cicero, *Off.* 1.150.

¹⁵⁴ Livy, 38.35.5.

¹⁵⁵ Walthall (2013) 142 esp. n.265.

¹⁵⁶ Petronius, *Sat.* 38; *I.G.* XI.4 627; Walthall (2013) 162-163 lists more inscriptions.

market exchange (patronage and euergetism) and the notion that economic outlooks vary between the five different socio-economic classes that constituted Roman Republican society. My aim with this framework Thirdly, a paragraph per chapter will be devoted to political context (III.1, IV.3 and V.1) to prevent overgeneralisations and anachronisms stemming from the widespread adoption of Development Economics as an interpretative framework.

Chapter II. Archaeology of the Economy

This chapter provides an overview of archaeological sources to be drawn on in the analysis of the Sicilian economy. The first paragraph offers preliminary remarks on the use of survey archaeology and populations of Sicily. Here the selection for the eight case-studies will be justified as well (II.1). The next two paragraphs are devoted to archaeological overviews of Segesta, Iatas, Heraclea Minoa and Lilybaeum for western Sicily and Centuripe, Tyndaris, Morgantina and Halaesa (II.2 and II.3). Because these overviews offer only general remarks on Sicilian agriculture, more details will be provided afterwards (II.4). Finally, archaeological evidence for non-agricultural production and trade will be considered (II.5). The conclusion provides a table that summarizes the development of the eight case-studies (II.6), and serves as reference for chapters III-V.

II.1. Preliminaries

II.1a. On survey archaeology

The overview below provides a synthesis of archaeology and surveys. Archaeology has traditionally favoured monumental and urban sites. However, the ancient economy was mainly agricultural and therefore I have decided to give primacy to surveys. Surveys provide information through surface scatters. The evidence in these scatters usually consists of pottery fragments, small household items, construction materials etc. These have the potential of affording insight into the nature of sites (e.g small farms, larger estates), settlement patterns and modes of production. Mainly through diagnostic pottery, (rough) chronologies of the scatters can be construed. Higher densities of smaller sites hint at small scale peasant farming, whereas a lower number of larger sites indicates large scale commercial farming. Urban archaeology can in turn reflect agricultural viability, as urban elites derived their wealth from their rural holdings. Through the institution of euergetism this wealth was utilized to fund public monumental buildings, but it could also be spent on private residences.

A consideration is in order of the methodologies used in the identification of settlement patterns of the eight case studies. Surveys were conducted at seven out of eight territories. These were all systematic and intensive in nature, aimed at finding all sites present in the investigated area. The surveys were conducted through systematic field walking. Line transects were used in every case, but three reports (Segesta, Iatas and Halaesa) do not

indicate at what intervals. The intervals that are indicated vary: 5 m at Heraclea, 10 m at Tyndaris, 15 m at Morgantina and 10-20 m at Lilybaeum. Aerial and satellite imagery were utilized at Segesta, Lilybaeum (1988), and remote sensing only at Lilybaeum (2016).¹⁵⁷ Finally, at Centuripe an alternative method was used, see II.3a.

The use of surveys is not without its problems, as has been recognized from the start. The main problem generally is that there is no standardized method, which leads to difficulty when drawing upon or comparing multiple surveys as this also determines the nature of the results. For this dissertation, this problem was not as pressing as seven out of eight considered surveys were intensive systematic line-walking surveys (although with varying transect intervals). The main problem I encountered was that the reports varied in which information they provided (see above). For instance, Thompson's report on Morgantina was clear and extensive, but the documentation on Iatas left much to be desired. Furthermore, De Ligt identified several problems of interpretation of sites by the archaeologists, as well as visibility of sites. The reports on Segesta, Heraclea, Lilybaeum and Morgantina provide concrete parameters for denoting the nature of sites (i.e. small farms, *villae* etc. based on m² and typology of finds), but for the rest I had to rely on the judgement of the archaeologists. In these cases, I will be more careful in drawing conclusions upon them and use the literary sources to provide more accurate chronologies if needed. After consideration of critical stances adopted I still deem surveys highly valuable for refuting generalizations and 'pessimism' inherent in traditional accounts on Republican Sicily that drew exclusively on literary sources. The use of eight surveys provides a large dataset that allows for regional variation and simply provides the best indication of land usage, especially in regard to intensity.¹⁵⁸

II.1b. Selection of case-studies

The primary motivation behind my selection of case-studies was to allow scope for different regional and political contexts. Also relevant was to pick sites that are geographically dispersed (see map 1). The table below shows what conditions were considered and how the case-studies vary in several aspects:¹⁵⁹

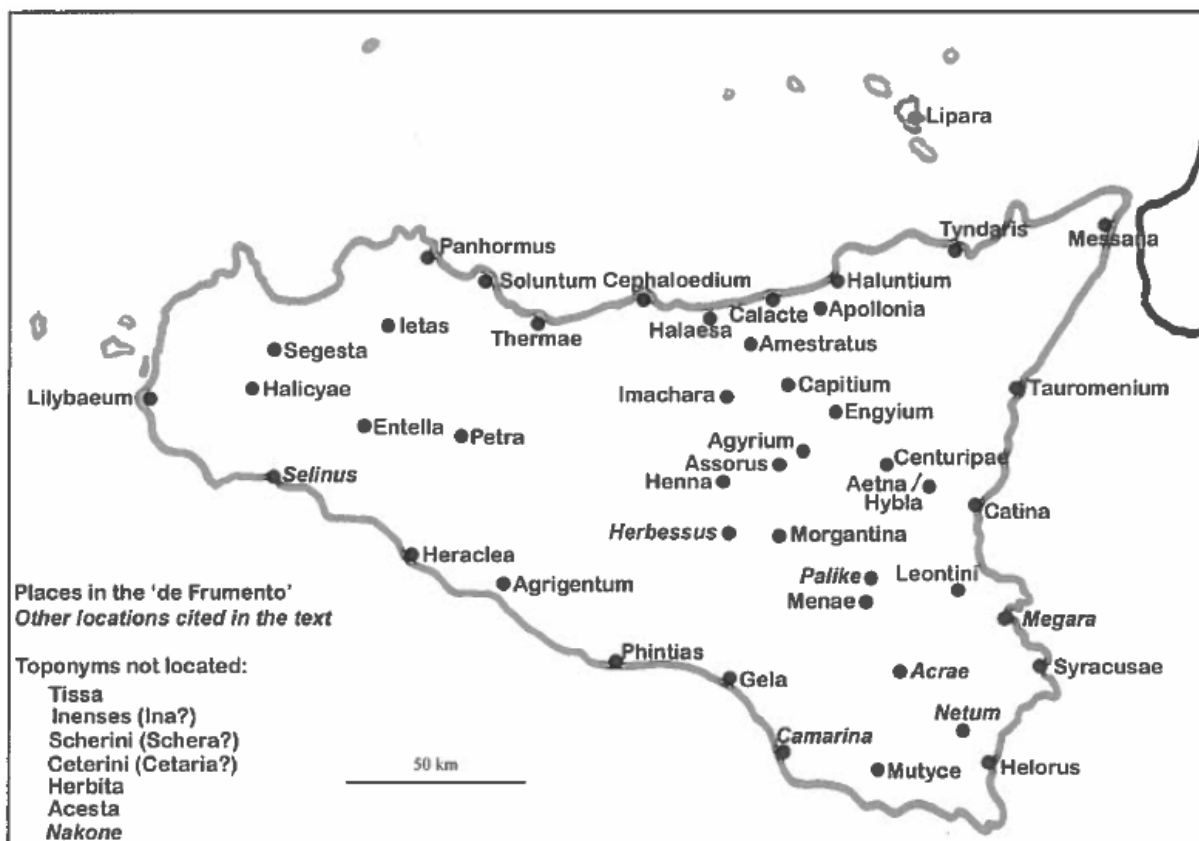
¹⁵⁷ Bernardini et al. 91-96; Johns (1985) 215; Wilson (1981) 249-251; Fentress (1988) 35-39; Mosca (2016); Fasolo (2014a) 14-17; Thompson (1999) 53-61; Burgio (2014) 489-493. See Thompson (1999) 43-45, who notes the unproblematized approach adopted in earlier survey reports.

¹⁵⁸ op. cit. 157; De Ligt 249-254; Laurence (2012) 43-58; Attema (2002); Bintliff (2000).

¹⁵⁹ Table: Cicero, *Verr.* 2.3.12-15; Wilson (2000a) 145; 205; Thompson (1999) 3; Bell (2007) 121; De Miro (1966) 221-233.

Region	Location	Founded by	City size (hectares)	Roman taxation
Segesta	Inland	Sicilian natives	32	Tax-exempt
Iatas	Inland	Sicilian natives	40	Tithe
Heraclea	Coastal	Sicilian Greeks	20	Tithe
Lilybaeum	Coastal	Carthaginians	77	Tithe
Centuripe	Inland	Sicilian natives	28	Tax-exempt
Tyndaris	Coastal	Greeks	27	Tithe
Morgantina	Inland	Sicilian natives	100, later ca. 20	Tithe and rent on land
Halaesa	Coastal	Sicilian Greeks	53	Tax-exempt

A final consideration is that cities were selected that conformed to typical Sicilian urban patterns. Nearly all cities in ancient Sicily were situated on hilltops, except for the largest like Syracuse, Agrigentum and Messana. The selected cities were all situated on hilltops, except Lilybaeum, which was typical of the type of large coastal cities although somewhat smaller than Syracuse and Agrigentum, which surpass 100 ha in surface area.¹⁶⁰ See appendix I for the chronological developments of these cities, as well as other important events.

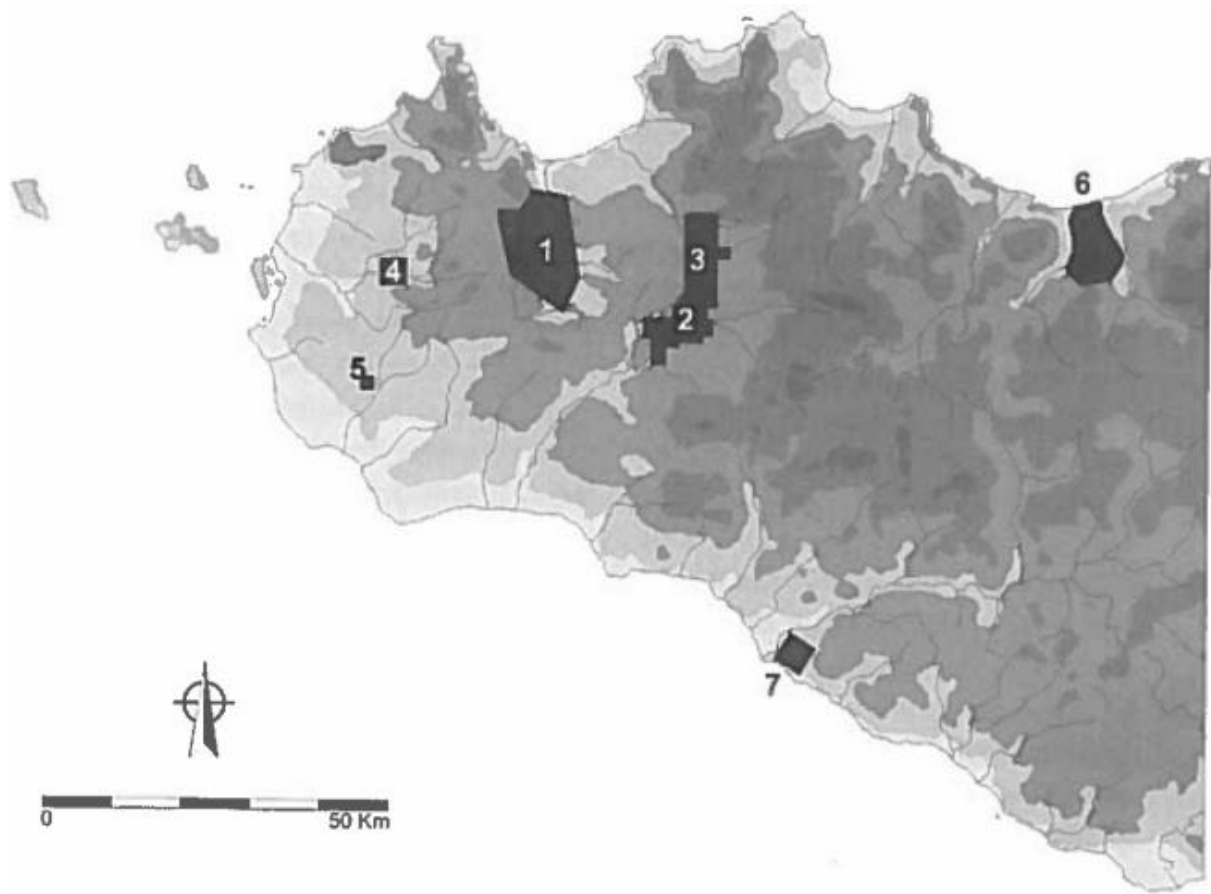


Map 1: Ancient cities in Sicily. Source: Prag et al. (2007b).

¹⁶⁰ Wilson (2000a) 134-150.

II.2. The Carthaginian West

Western Sicily was subject to several surveys in the last decades of the twentieth century. Giamellaro et al. provide a good overview of these.¹⁶¹



Map 2: Overview of survey areas in western Sicily. Relevant numbers: 1. Segesta, 3. Iatas, 5: Lilybaeum (hinterland), 7. Heraclea Minoa. Source: Giamellaro et al. (2008) 134.

II.2a. Segesta

The modern Calatafimi district was the subject of a large scale survey (80 km²) in the 1990s (map 2, no. 1). The area was hinterland to the Elymian-Greek hilltop city of Segesta, consisting of the wide Freddo river valley and surrounding hills. The total number of sites identified was 475.

The area saw dense rural occupation from the fifth century B.C. onwards, when the number of sites jumped from 17 to over 200. In the Hellenistic era (ca. 300-150 B.C.) these sites remained occupied and 20 new ones were identified, bringing the number to 235. Over 50% of all identified sites were occupied in this period. The dominant form of rural site, especially in the direct vicinity of Segesta was the single-family home, with sites ranging

¹⁶¹ Giamellaro et al (2008) 134-139; cf. Miccichè, Modeo & Santagati (2006), esp. Bejor (2006).

between 100 and 2500 m². Settlement concentrated around the river, in the suburban area of Segesta and on the hills further from the city. Peasant farmsteads (scatters up to 400 m²) were found in the hills, while larger commercial farms (400-1600 m² with architectural elements) occupied the lower slopes and valley floor near the river. These larger (commercial) farms were quite common: some fifty existed between 350 and 150 B.C.¹⁶² Small villages were also found (scatters of 6.400-40.000 m²), marked by a scarcity of material culture, indicating poorer residents than those of the farmhouses. Artefacts that were rather common here were loom weights, indicating textile production and sheep-raising. Larger villages lay close to the river. The territory thrives during the Hellenistic era.¹⁶³

In the Republican period (here 150 B.C. onwards), a change in rural patterns occurred. In all, 40 out of the ca. 235 sites were abandoned, mainly small farms in more remote areas. In the southern part, for instance, only 1 of 13 sites survived. Of the Hellenistic sites, it was generally the larger ones that remained occupied, although continued dense settlement consisting of smaller sites remained the norm closer to the city (e.g. Monte Barbaro and Pispisa). The villages displayed an increase in size in this period. This indicates a larger scale of landholding and cultivation in the river valley, but it is important not to neglect the continuity of smaller farms in the suburbs of Segesta. Finds of Rhodian *amphorae* sherds (between ca. 300-50 B.C.) indicate long-distance trade. Some North-African fragments of oil containers were also found, but by far the largest proportion of fragments comes from Greco-Italic wine-*amphorae*, both from Italy and produced on Sicily itself.¹⁶⁴

The early imperial period entailed a remarkable depopulation of the countryside. For instance, in the valley adjacent to modern Catalafimi the number of sites dropped from 15 in the Republican phase to 1, even though the area is very fertile and well-irrigated.¹⁶⁵

The urban centre of Segesta flourished in the fifth century B.C., when its massive temples were built. It was believed that urban decline set in after in the third century, as Segesta's famous theatre was completed sometime before. But a recent re-assessment of the theatre has now firmly dated it to the second half of the second century. Moreover, a highly conspicuous two-storey *stoa* was constructed on the *agora* around this same time (figure 1), as well as a *bouleuterion* in ca. 100 B.C. The actual urban decline of Segesta began ca. 50 B.C., as afterwards wall circuits were continually rebuilt to encompass smaller areas. The city

¹⁶² Cambi (2003) 150; 156.

¹⁶³ Bernardini et al. (2000) 100-104; cf. Giamellaro et al (2008) 134.

¹⁶⁴ Bernardini et al. (2000) 104-107.

¹⁶⁵ Bernardini et al. (2000) 107-109; Cambi (2003) 150-152.

was abandoned around the turn of the second century A.D., when the population had moved to nearby *Aquae Segestanae*.¹⁶⁶

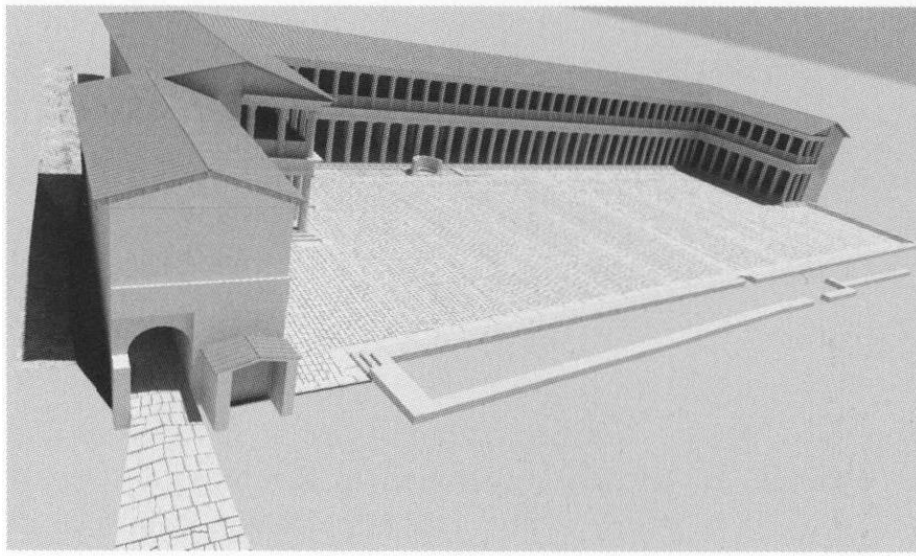


Figure 1: Reconstruction of the *stoa* at Segesta. Source: De Angelis (2012) 185.

II.2b. Iatas

The Monreale survey was conducted between 1983 and 1989. It covered an area of 70 km² in the Belice valley, between two hilltop settlements (map 2, no. 3). The larger of these was ancient Iatas¹⁶⁷, situated atop Monte Iato and the other Monte Maranfrusa (ancient name unknown). The area consists of rolling hills, several steep hilltops and many small streams.¹⁶⁸ Figure 2 presents a uniquely accurate overview of settlement chronology.

No evidence was found for rural occupation before 400 B.C. During the fourth and third centuries B.C., isolated small sites appeared, and increased in number until ca. 250 B.C. Johns noted signs of rural abandonment in 250-200 B.C., but attributes this to the imperfect knowledge of the collected material – Perkins does not mention this.¹⁶⁹ Between 200 and 100 B.C., some sites disappeared but new ones were founded. In the first century there was again some turnover, but the number of sites remained stable at 34. Small scale farms remained the dominant form of site but during the first century B.C. settlement started to concentrate in the valley near Iatas. There is no evidence of *villae* in the Republican period, but in the early imperial period several farm sites were monumentalized with concrete, marble

¹⁶⁶ Wilson (2013) 101; cf. De Angelis (2007) 179.

¹⁶⁷ Several names are attested: Ietas, Iaeta, Jetae, but I will use Iatas.

¹⁶⁸ Johns (1985) 215.

¹⁶⁹ Johns (1992) 143; Perkins (2007) 39-40.

and mosaics.¹⁷⁰ Overall, rural settlement appears stable in 300-1 B.C.

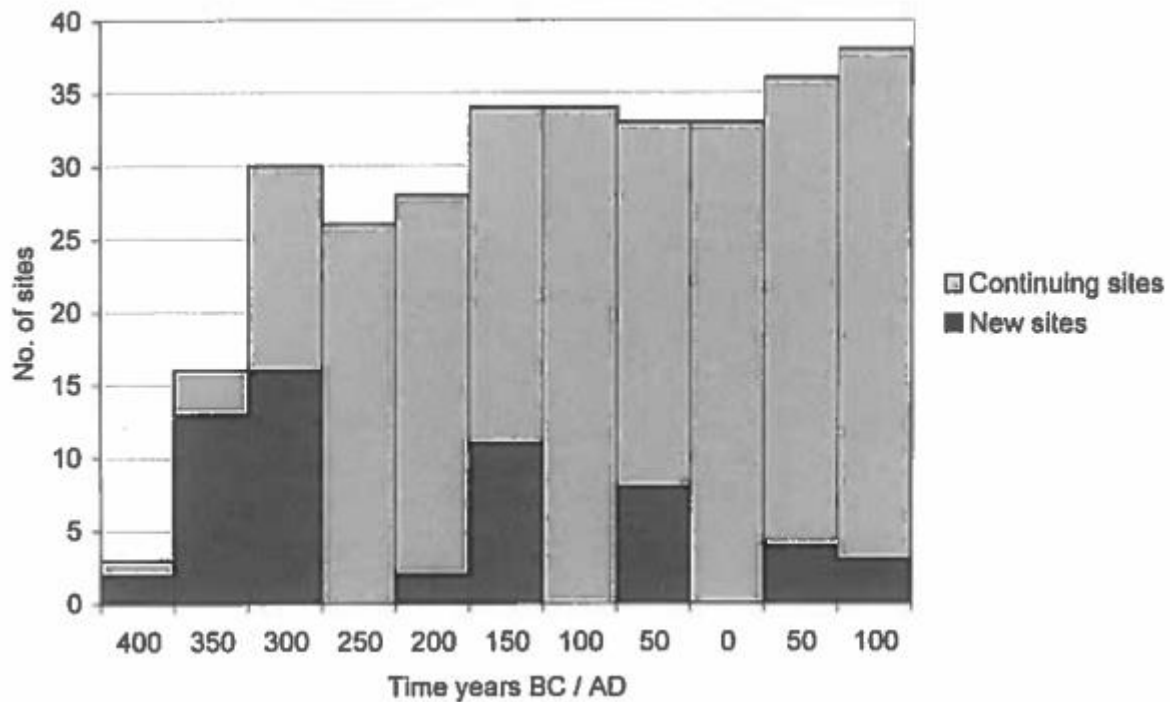


Figure 2: Chronology of site numbers from the Monreale survey. Source: Perkins (2007) 40.

Transport *amphorae* found in the survey provide evidence of exchange between Iatas and Italy. 78% of Greco-Italic *amphora* sherds from 300-130 B.C. originated in Campania, as is evident from the nature of the volcanic clay. Among remains of the typological successor, Dressel I, 58% originated in Campania. Perkins notes a decline in the number of *amphora* remains in this later period. For the total period of 300-30 B.C., another 6% of sherds originated in other areas of central Italy.¹⁷¹

The urban archaeology of Iatas has received more attention than the survey. Five sites of particular interest were identified by Wilson. The first is the *agora*, the main layout of which was established in between 225-175 B.C. A platform in the northwest corner was used as seating for municipal magistrates during public hearings, a hint of the political autonomy of Iatas under Roman dominion. The second site was a *bouleuterion*, built ca. 150 B.C. with seating for some 70 council members. The third site indicates urban prosperity, as a new *bouleuterion* was built only two decades after the first. It was much larger, and could accommodate approximately 200 council members. Wilson noted that this might imply an

¹⁷⁰ Johns (1992) 143-144; Perkins (2007) 40-41.

¹⁷¹ Perkins (2007) 43. He does not indicate what method was used for drawing these conclusions, but since he pinpoints the origin of the *amphorae* with certainty and specifically to the Bay of Naples, I infer petrographic analysis.

influx of settlers after the First Servile War, which is attested for Heraclea Minoa (see II.1c). The fourth site is the theatre, but dating proves difficult. The excavator dated it to 300 B.C., but a Roman date is generally more accepted (ca. 200 B.C.). It was reconstructed and refurbished lavishly with marble sculptures in the stage building. It appears the elite engaged in euergetism, archaeologically attested in public buildings. The fifth site, a large peristyle residence, indicates that the elite also invested in private opulence. This residence, construed in 260-200 B.C., covered 830 m² and boasted 25 rooms on the ground level and it probably had a second storey as well. It was abandoned mid-first century A.D.¹⁷²

II.2c. Heraclea Minoa

While the previous two case-studies were inland, hellenized native cities, the two that follow were coastal colonial settlements. Heraclea Minoa was founded by the Sicilian-Greek city of Seliunte in the mid-sixth century B.C. The survey was conducted in 1977-1978 in 20km² area (map 2, no. 7).¹⁷³ The area is marked by the estuary of the Platani river, fertile plains and low rolling hills. The city is situated on a cliff near the sea. The survey yielded little results in the flood plain of the river, as remains were covered by silt but it is possible that settlements were absent there anyway.¹⁷⁴

During the Classical period most farmers must have lived in the city as only 5 rural sites were identified. Of these only one indicates permanent occupation: a large quantity of roof tiles and pottery within a 50x50 m area close to the city. This may have been a large farmstead, but also a temple or brickworks.

The Hellenistic period (320-30 B.C.) yielded more sites. Four small scatters close to the city were probably peasant farms (map 3 no. 2-5). Site 4 yielded a loom weight and site 5 a spindle whorl (second-first century B.C.). Six other sites were identified as more distant farmsteads (map 3 no. 8-11; 12-13; 18-19), while two more were probably farms but could not be identified with certainty (map 3 no. 7 and 16). More exact chronology proved difficult, but the bulk of sites appeared in the second century B.C. and show continued occupation to the early imperial period.¹⁷⁵ Wilson noted that farms 8, 10, 11 and 13 are remarkably similar in size (scatters of ca. 35x50 m) and spacing between them, so they may have been part of a structural settlement policy. But the undoubtedly diagnostic nature of survey results make observations like these difficult, as unidentifiable farms could have lain between these. The

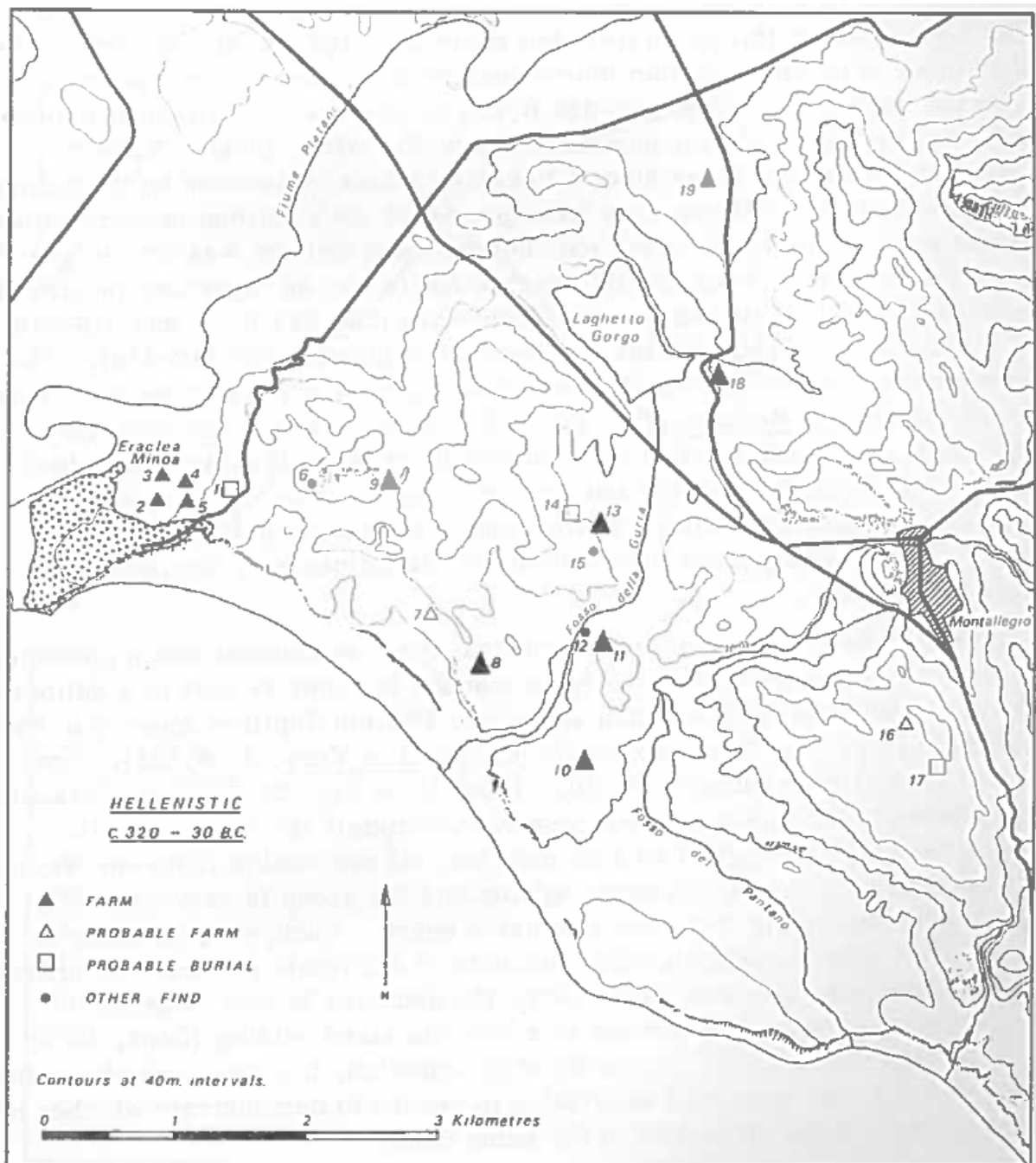
¹⁷² Wilson (2000a) 147-150.

¹⁷³ Wilson (1981) 249-251.

¹⁷⁴ Leonard & Wilson (1980) 219-221.

¹⁷⁵ Wilson (1980) 227-230; Giamellaro et al. (2008) 138.

most distant farmsteads (18 and 19) would grow into *villae* during the early imperial period. None of the other sites shows any occupation by the middle imperial period.¹⁷⁶



Map 3: survey results of Hellenistic and Republican period in Heraclea Minoa: Wilson (1981) 252.

Extensive excavation of rural sites is uncommon but performed at Heraclea, fortunately. In 1994-1998 Campanaio, an agricultural village at the mouth of the Platani river to the west of Heraclea, was excavated. The site covers approximately 3 hectares and was situated on the

¹⁷⁶ Wilson (1981) 252-254.

Roman road between Agrigentum and Lilybaeum. In total, eight trenches were dug, three of these revealed occupation in the Republican era.

The area of trench C was occupied in the Republican period. The first phase of construction was ca. 200 B.C., indicated by small wall remains and tile scatters. It was rebuilt on a larger scale between 150-125 B.C. Two shallow pits meant for *dolia* belong to this phase. Phase 3 (starting ca. 50 B.C.) saw construction of a large L-shaped building with multiple storeys. Occupation of this building continued until the first century A.D. A large amount of animal bones was found at the site, indicating meat consumption and probably animal husbandry. The bones belonged mostly to goat, sheep and deer, cattle and pigs. Of special interest are Punic pottery sherds and *amphora* stamps and remains of Rhodian *amphorae*, dated before 176 B.C.¹⁷⁷

Trench F revealed the remains of a large kiln, most likely used in the production of the bricks and roof tiles which were found at most sites. It was dated to the middle second century B.C., and no pottery was found from after 50 B.C. Trench G contained a similar but smaller kiln and a tile-making workshop. Another discovery here were two underground cisterns, fed by watering drains made from reused *amphorae*. Three of these *amphorae* bore typically Punic stamps.¹⁷⁸

The urban centre of Heraclea became monumentalized in the early third century B.C., as attested by the theatre and the largest circuit of defensive walls. Both of these monumental structures betray urban decline afterwards. In the middle third century (before Roman conquest) a new circuit was added that enclosed a smaller area than the previous. This new circuit had a more *ad hoc* character too, as it contained reused building blocks from other structures (including an altar). The stratigraphy of the theatre contained several burnt layers, broadly dated to the third century. It had fallen out of use at its latest in the end of the second century B.C., as new housing and workshops were built into the *parodos*. The pottery remains found here belong to the second and first centuries B.C., and mainly consist of sub-Punic types (made in Sicily) and some North-African material. 10-20% of the pottery came from Campania. Fineware was generally imported from Campania and Syracuse.¹⁷⁹

A large *insula* was also excavated, which contains an extensive stratigraphy. It was laid out in the late fourth century B.C., and demonstrated that Heraclea was originally laid out along the orthogonal grid typical of colonial cities. The residential quarter was cut in half

¹⁷⁷ Wilson (2000b) 342-347.

¹⁷⁸ Wilson (2000b) 352-361.

¹⁷⁹ Wilson (2000b) 364-365.

multiple times when new defensive walls were constructed, and showed layers of destruction that seem concurrent with the Servile Wars. The city seems to thus have suffered heavily in the First Servile War, as afterwards P. Rupilius (proconsul 132 B.C.) arranged resettlement.¹⁸⁰ Heraclea Minoa declined in size, but mostly politically, from ca. 250 B.C. onwards and ceased to be inhabited towards the end of the first century B.C., as no diagnostic pottery of the imperial period has been found.¹⁸¹

II.2d. Lilybaeum

Lilybaeum was of more political importance than the previous cities, as it was the seat of a Roman praetor in 227 B.C. The city's territory was also marked by the presence of Roman legions after 241 B.C., but it remains unsure whether these were established structurally (see III.1).¹⁸² The city was founded by Carthage to serve as her main stronghold in 397 B.C.¹⁸³

The most prolific site in the territory of Lilybaeum is a *villa* (near modern Timpone Rasta). It appears the area it was built on was occupied before by a village (third century B.C.). The *villa* was built in the second half of the second century B.C. It appears to be of a distinct Greek style, as it is very similar to the Greek houses discussed by Vitruvius. The *villa* is rather large: its *peristyle* courtyard measured 28x26.5 m and the material scatter no less than 70x40 m.¹⁸⁴ The *villa* sparked interest in this region, leading to a small but intensive survey in 1988 (map 2, no. 5) within three 2 km² areas in the Mazaro river valley and nearby hills. Occupation of the region began in the fourth century B.C., when 4 sites were established. 20 more appear during the third and second centuries B.C. For the Republican period, sites were divided into three categories:

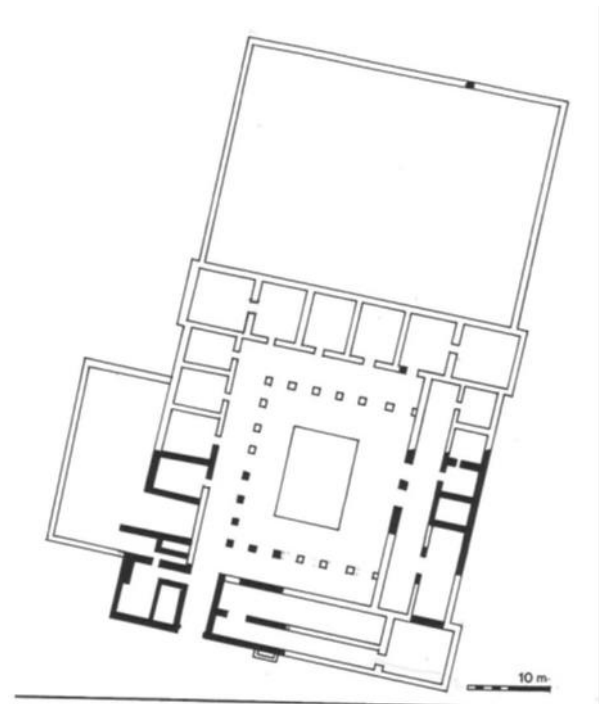


Figure 3: Plan of the *villa* at Timpone Rasta (Lilybaeum). Note the four tower-like structures on the corners of the central peristyle. Source: Fentress (1998) 30.

¹⁸⁰ Cicero, *Verr.* 2.2.32; 2.2.125.

¹⁸¹ Leonard & Wilson (1980) 220.

¹⁸² Polybius, 2.23.9; 2.24.13; Livy, 21.49; cf. Serrati (2000) 127-128; Prag (2007a) 72-76; see also IV.2.

¹⁸³ Diodorus 13.54; 22.10.

¹⁸⁴ Fentress (1998) 29-34; Giamellaro et al. (2008) 138-139.

Site type	Evidence	Size	Number
Small farm	Sherd scatters	0.1-0.25 ha	7
Large farm	Large scatters	0.25-0.96 ha	8
<i>Villa</i>	Architectural elaboration (columns, mosaic fragments)	0.96-4.00 ha	9

Large farms and *villas* possibly also started as smaller farms, but it is indeterminable when exactly they grew. Therefore, this is a representation of the late Republican landscape. Small farms are also less likely to leave traces so their proportion must have been higher. Two more sites appeared in the Julio-Claudian period.¹⁸⁵

Fentress noted that sites were aligned along parallel axes, which are represented on the survey map (map 4). Proposed is a centuriation of the territory prior to the construction of most sites. The areas within the centuriation-lines measure 20x20 *actus*.¹⁸⁶ The centuriation remains hypothetical, as there is no evidence of a Roman road nor of any other Roman surveying in Sicily.¹⁸⁷ Still, this may be used to estimate plot sizes belonging to the *villae*: these would be 3 blocks, which corresponds to 600 *iugera*. The find of a pruning knife at the excavated villa suggests that trees were cultivated.¹⁸⁸ The case for presence of centuriation was cautiously but not conclusively confirmed in another survey in 2012, that was conducted using aerial photography, remote sensing and satellite images. The probable centuriation covered an area of 105 km².¹⁸⁹

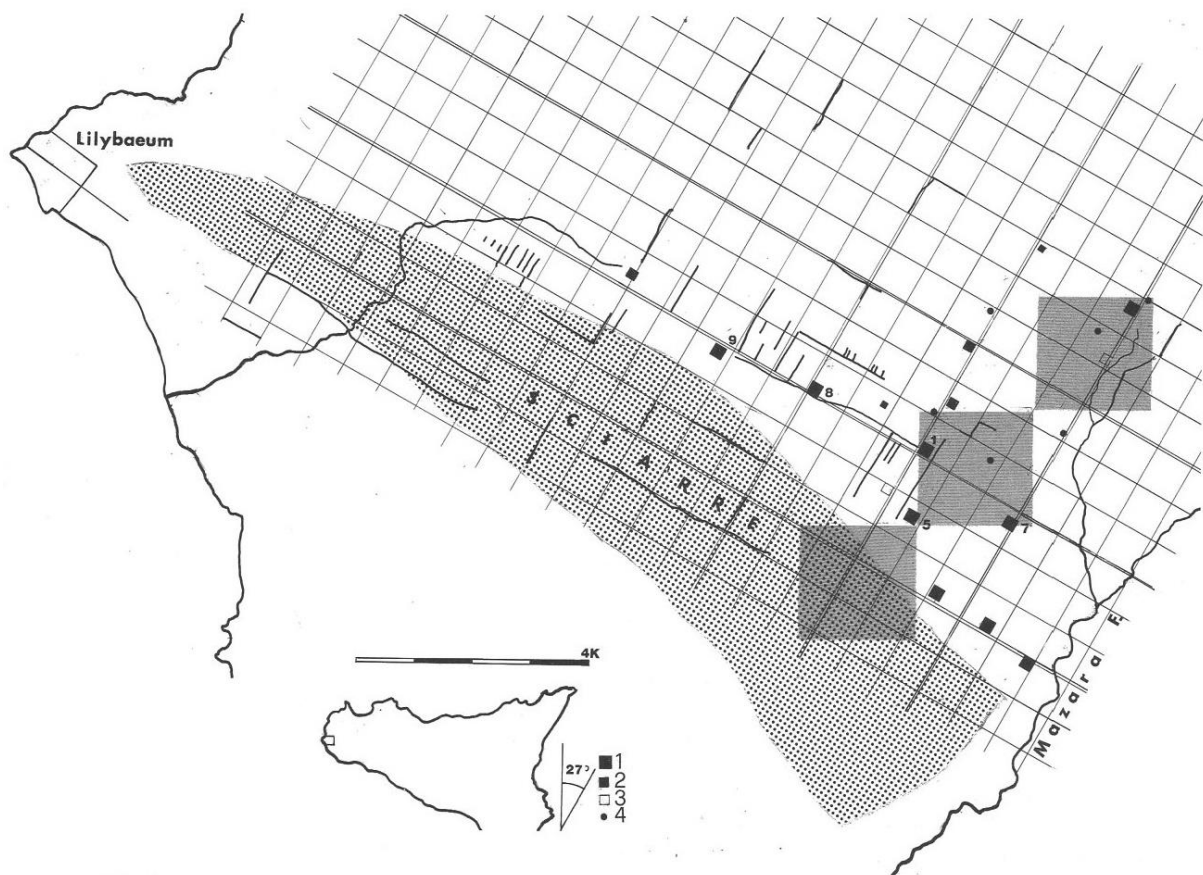
¹⁸⁵ Fentress (1988) 35-39.

¹⁸⁶ 1 *actus* = 35.5m; 20 *actus* = 710m; Varro, *R.R.* 1.10.: 1 *iugerum* = 2 square *actus*.

¹⁸⁷ cf. Wilson (1996) 120.

¹⁸⁸ Fentress (1998) 35; 39.

¹⁸⁹ Mosca (2016) 7-9.



Map 4: Survey of the hinterland of Lilybaeum. Dark grey areas indicate the survey area. Legend: 1. villa, 2. large farm, 3. site with poor visibility, 4. small sherd scatter. Source: Fentress (1998) 34.

Evidence of the city's role as an emporium on the main Mediterranean commercial routes of the Republican period include stamped *amphorae* found in urban excavations and in the waters surrounding the city. These attest to the importation of wine from South and Central Italy and the Eastern Mediterranean as well as oil from North Africa.¹⁹⁰ Evidence of prosperity of the local Greek or hellenized elites can be found in several inscriptions which commemorate acts of euergetism.¹⁹¹ The city centre of Lilybaeum remains largely unexcavated, as the modern city of Marsala is built on the same site. The first fully excavated *insulae* stem from the second century B.C. Within the orthogonal grid plan lay various luxurious residences, one of which contained large Italic tetrastyle *atrium*. The same defensive walls were maintained from the Punic period to the Principate.¹⁹² Without better evidence, I presume a mostly stable but prosperous situation for Lilybaeum throughout the fourth to first centuries B.C.

¹⁹⁰ *Lilibeo* (1984) 131

¹⁹¹ Piraino (1963).

¹⁹² *Lilibeo* (1984) 104-107.

II.3. The Greek East

II.3a. Centuripe

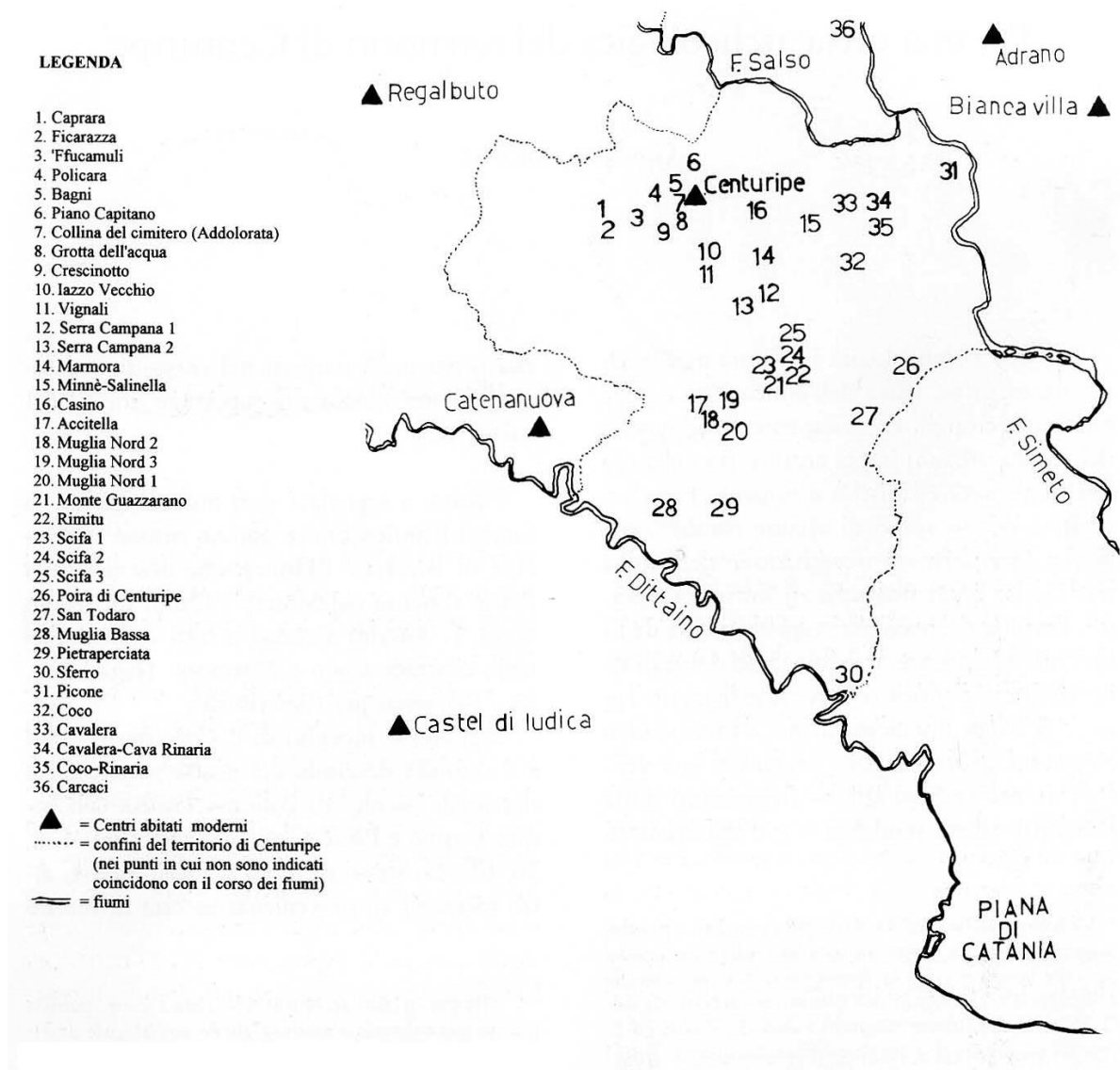
Centuripe is located in East-Central Sicily, the urban centre was situated on a steep ridge between the Simeto and Dittaino rivers. The area is highly fertile, except for some steep slopes to the south, and crossed by many small streams.¹⁹³ Thucydides called it a city of the (native) Siculi, which allied itself with Athens against Syracuse. It was captured by Agathocles (312 and 304-289 B.C.), but later regained its independency until it surrendered to Rome in 263 B.C.¹⁹⁴

Biondi has carried out investigations of the area around Centuripe between 1991 and 1995. He selected 36 sites in the territory (hilltops, valleys, villages etc.) and assessed for each site a chronology based on local finds (map 5). This is not a survey in the strict sense, but still provides insight in the extent of settlement and land use. From the Iron Age onwards, settlement concentrated around the urban core and it was only during the Republican period that settlement dissipated further. Biondi remarks that the areas most sought after showed stable occupation throughout the three most populous phases: the early Bronze Age, the Hellenistic period and the modern period.¹⁹⁵

¹⁹³ Biondi (2002) 44.

¹⁹⁴ Thucydides 6.94.3; Diodorus 13.83.4; 19.103.2; 20.56.3; 23.4.

¹⁹⁵ Biondi (2002) 75.



Map 5: Sites identified in the territory of Centuripe. Source: Biondi (2002).

During the Classical period, Centuripe had very little rural occupation; pottery from this period was found only at sites 2 and 9. Biondi links this depopulation of the countryside to the numerous wars in the area in the fifth and early fourth centuries B.C. A resurgence of rural settlements occurred in the Hellenistic era (ca. 300-30 B.C.). The accuracy of site chronologies is dependent on the types of pottery found: for some sites it is quite precise, but others just show occupation in the general era (see below). The sites were predominantly small farms, but at Monte Ficarazza (site 2) there was a rural hamlet. In the early imperial era (30 B.C. - 200 A.D.) there was a decrease in rural occupation. This is indicated foremost by the relative absence of Italian *sigillata*. Biondi has not found any large estates; these only

appeared in the late imperial period (fourth century A.D.).¹⁹⁶

For clarity, I have summarized Biondi's findings in the table below. 'C' indicates certain occupation, 'I' indicates that occupation is imprecisely dated to the broader period, 'N' means no occupation and '/' indicates differences per half-century. Compare these numbers to map 5 to the locate sites.

Site number	300-200 B.C.	200-100 B.C.	100-30 B.C.	Early imperial
2	C	C	C	C
3	C	C	C	N
10	N/C	C/N	N	N
13	N	N/C	C	C
18	C	C/N	N	N
21	N	N/C	C	N
24	C	N	C	C
32	N	N	N	C
4, 14, 15, 22, 23, 30, 33	I	I	I	N
7, 11, 13, 14, 15	I	I	I	C

The total number of sites increases from 2 to 17 between 300 and 30 B.C., but the accurately dated sites provide no indication as to when growth occurred (for every century 5 sites were occupied albeit different ones). In light of the urban archaeology and literary evidence, I have distributed the appearance of the 12 sites equally over the third and second centuries B.C. These centuries saw rural expansion, whereas the first century B.C. was marked by stability (see II.5 for the numbers and III.3a, IV.2a and V.2a for justification).

Centuripe was not only an agricultural centre in the last three centuries B.C. Kiln complexes have been excavated which surrounded the urban core. The kilns produced terracotta figurines, busts and other cultic and domestic items, but also Campana C finewares. Several workshops continued to do so until the early imperial era. Rhodian *amphorae* attest of wine imports, but these ceased after 167 B.C., when Italic Dressel I became the dominant imported *amphora*.¹⁹⁷ Since the modern town still sits upon the same site as the ancient, excavations in the city centre are relatively scarce. Those on the outskirts of town indicated urban expansion from the third century B.C. onwards, as residences and (pottery) workshops were now constructed on sites formerly occupied by necropoleis. While almost nothing remains of the public buildings of the urban centre, we know there existed a *gymnasium*, from

¹⁹⁶ Biondi (2002) 77-79.

¹⁹⁷ Rizza (2002) 29-36.

a fragmentary inscription which honours a *gymnasiarch*.¹⁹⁸ Cicero indirectly mentioned the existence of a *bouleuterion*, as he related that the Centuripan municipal government attempted to take down statues of Verres.¹⁹⁹ The archaeological record of the areas surrounding the city centre contained layers of destruction, indicating the abandonment of these areas in the late first century B.C., leading to a substantial contraction of the city.²⁰⁰

II.3b. Tyndaris

Tyndaris was a Tyrrhenian coastal city near the northeastern tip of Sicily. The area is marked by fertile coastal plains, valleys between low hills on the inland and several streams. According to Diodorus, the city was founded by Dionysius I of Syracuse in 396 B.C. Tyndaris was captured by Carthage in the First Punic War, but it went over the Roman side in 254 B.C.²⁰¹ The survey was conducted between 2010 and 2012 within the municipal borders of the modern town of Patti (ca. 50 km²). Several areas, together ca. 18 km², were surveyed. Its results have recently been published extensively.²⁰²

37 sites have been identified for the Hellenistic age (400-200 B.C.). These concentrated in two areas: one in the coastal plain, in the direct hinterland of the urban core and the other was on a ridge that separates the territory of Tyndaris from neighbouring Abakainon (Abacaenum). Almost all sites showed signs of prior human activity but not conclusively for permanent residence.

In the Republican period (200-30 B.C.) the number of sites doubled, reaching 75. Fasolo notes that settlement patterns indicate an area where arable land was divided into small, intensely worked plots, especially in the coastal areas near the city. Settlement was more widespread than in the preceding period but again concentrated in several places. Firstly, in a band of ca. 2 km from the urban centre and secondly in two inland areas that enjoy good access to streams and roads (ca. 5-7km from Tyndaris). The *amphorae* from this period conform to a more general Roman pattern as there was a shift from Greco-Italic to Dressel I. Due to good clay soil in the coastal areas, several pottery and tile workshops appeared there in the first century B.C. Analysis of pottery remains confirms this: they are a mixture of local production and (Italian) imports.

Several scatters from the first century B.C. are larger (> 1 ha) and more dense, they appear to have been larger agricultural complexes. Two of these have been identified as

¹⁹⁸ Patanè (2002) 130; 142-155.

¹⁹⁹ Cicero, *Verr.* 2.2.67-2.2.68.

²⁰⁰ Patanè (2002) 147-152.

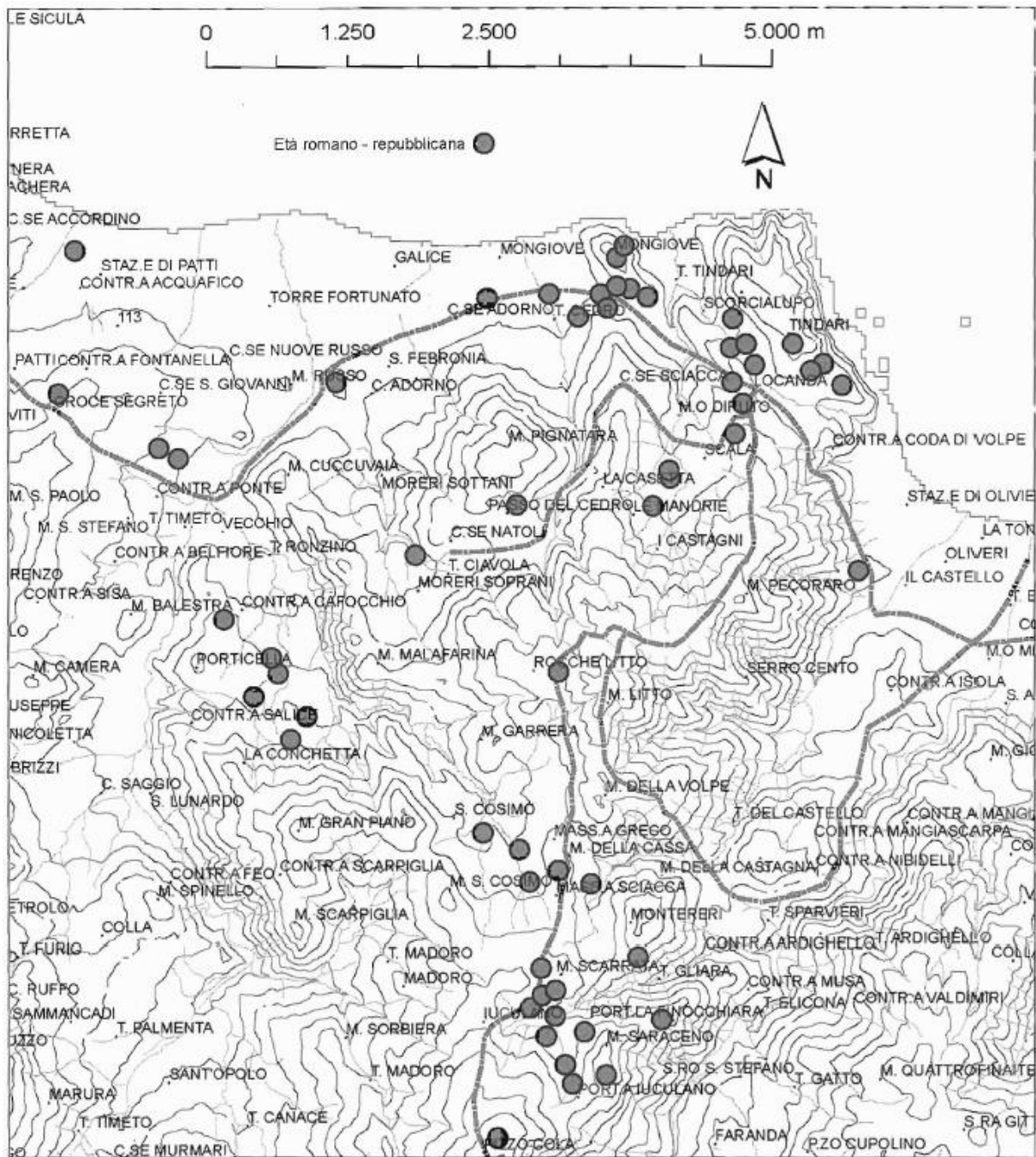
²⁰¹ Diodorus 14.78; 23.18.15.

²⁰² Fasolo (2011) esp. 119-120; Fasolo (2014a) 9-13 on the survey area; Fasolo (2014b).

villae, because these scatters also contain architectural elements, mosaic fragments and painted plaster. One of these is at Oliveri (northeastern coast) and occupied the slope of the hill which looks out onto a coastal plain. There were no other sites found in this plain, indicating that this area was probably the farmland belonging to the *villa*. The other is at Patti Marina (northwestern coast) and Fasolo states its function was linked to exploitation of sea resources as it was located very close to shore. While this is possible, I would attribute the *villa* with a ‘regular’ agricultural function as it is similarly situated as *villas* in Campania. Another *villa* lays just outside of the survey area (ca. 10km from Tyndaris), which was constructed 90-30 B.C. and had a clearly agricultural function.

In the early-middle imperial periods (1-300 A.D.) the number of sites dated with certainty drops to 41, but 56 sites contain remains that cannot be dated more precisely than to the imperial era (figure 4: Età romana). Fasolo states that rural settlement changes but this should not be interpreted as rural depopulation. Under Augustus the *Colonia Augusta Tyndaritanorum* was settled in the territory.²⁰³

²⁰³ Fasolo (2011) 126-136; see Fasolo (2014a and 2014b) for an extensive catalogue of pottery and other finds.



Map 6: The Tyndaris survey area, indicating sites of the Republican period. Source: Fasolo (2011) 130.

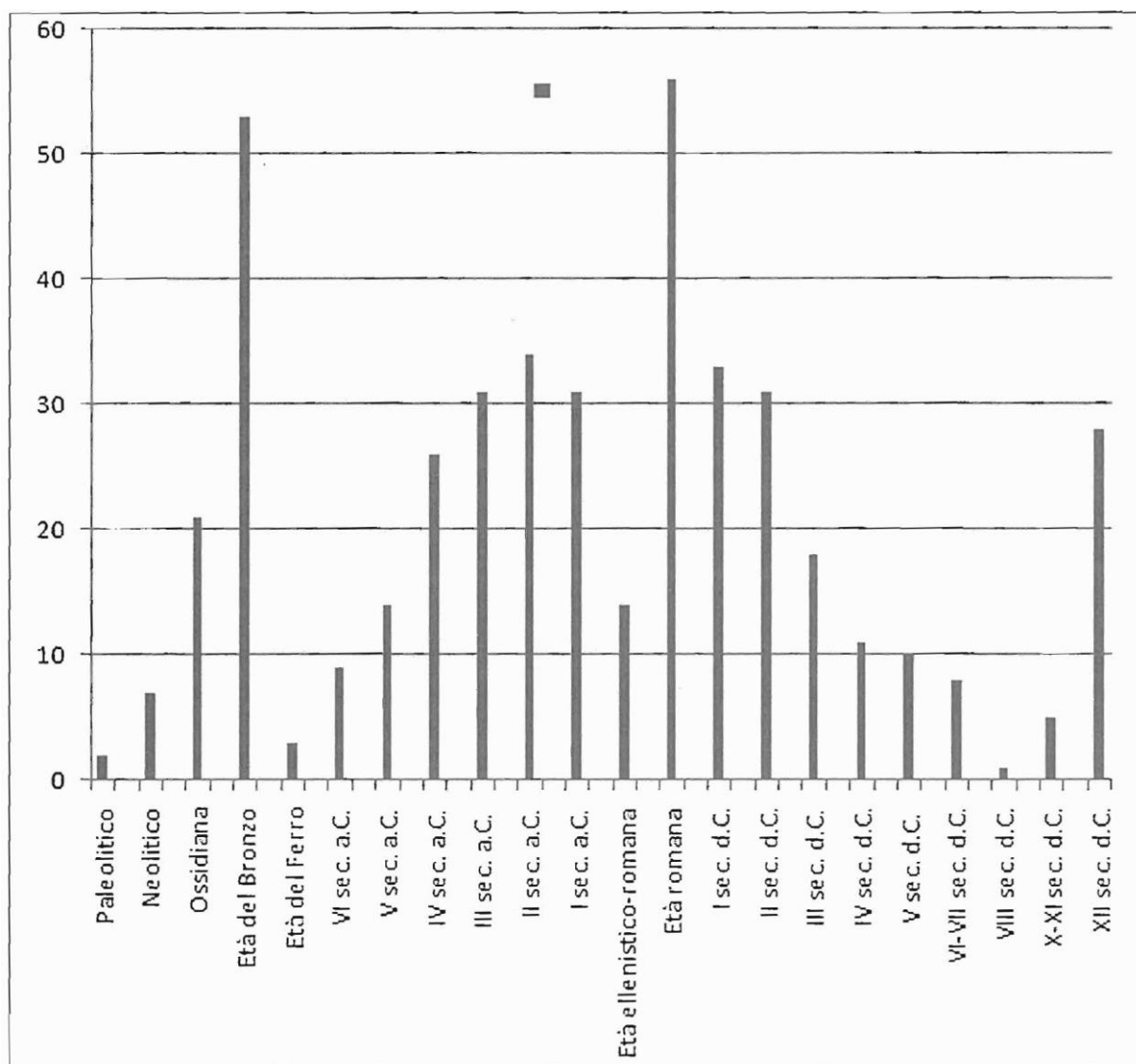


Figure 4: Total site distribution of the Tyndaris survey across the centuries. Source: Fasolo (2014) 144.

The urban centre of Tyndaris showed increases in wealth in the Republican period. Only two sites have been extensively excavated: the Roman theatre and the housing block *insula IV*. Within this block, new lavish mansions were constructed over the remains of more modest dwellings from the fourth and third centuries. According to Fasolo, these belonged to a newly prosperous local elite, whose domestic architecture shows a mixture of Hellenistic and Italic forms – sensible to the *koine* into which the city was drawn. The largest of these *domus*, Casa B occupied 900m² and its peristyle alone is as large as one of the previous houses on the site.²⁰⁴ The Roman theatre has been dated to ca. 100b.C., but was probably restructured from a Greek predecessor.²⁰⁵

²⁰⁴ Fasolo (2011) 129; La Torre (2004) 135-140.

²⁰⁵ Wilson (2000) 143.

II.3c. Morgantina

Morgantina was a Sicilian city, but became hellenized early in its history due to its contacts with Camarina and Syracuse. The urban core was located on a ridge (Serra Orlando), overlooking the Gornalunga river valley. Morgantina was landlocked and lay to the west of the Catanine plain. Its territory was subject to an systematic intensive large scale survey (150 km²) between 1992 and 1994.²⁰⁶

The late Classical and early Hellenistic phase (ca. 400-200 B.C.) was marked quantitatively by a small increase of settlement in regard to the previous period: from 52 locales to 56. But the qualitative differences are much more telling. Firstly, for the preceding period, only 34 of 52 sites indicated permanent occupation. For the Hellenistic period this was 47 out of 56. Secondly, the density of finds is much higher, as the total amount of artefacts (almost exclusively pottery shards) increased from 470 to 730 (55%). Settlement was, however, more densely concentrated in one area; more 'marginal' areas were abandoned. 23 of the 47 sites continued from the previous period, whereas 24 were new foundations. Thompson points out that the qualitative differences hint at much more residency in the countryside (as opposed to farmers commuting to their fields). Remarkable is also that sites identified as small to medium farms are located within 2-5 km from the urban centre, and larger sites all at ca. 4,5 km from the centre. This hints at an intensification of agriculture, which is linked by Walthall to the Hieronian tithe: production would be increased to cover the losses, as well as to exploit the new commercial opportunities offered by the tithe administration.²⁰⁷ I will react to this in IV.4b. Finally, Thompson notes that of the entire pottery assemblage, only 1 shard can be identified as certainly imported.²⁰⁸

The late Hellenistic phase (200 B.C. - 50 A.D.) yielded less artefacts than the previous, but Thompson mentions difficulty in discerning between the two. He draws upon the vicinity of diagnostic pottery nearby for the classification, but it could be possible that ca. 250 sherds of the fourth and third centuries actually belong to the Roman period. Still, he established the total amount for the Roman phase at 282, almost all of which was of the Italian Arretine type (87%). The number of permanent sites decreased, based on which indicative pottery is considered, by 40-72% (from 47 to 28-13). Generally, this phase was marked by rural abandonment. There is no indication of concentration of population in fewer sites, a general regional depopulation is much more likely. The sites that remain are

²⁰⁶ Thompson (1999) 53-61.

²⁰⁷ Walthall (2013) 183-184.

²⁰⁸ Thompson (1999) 376-431; esp. 413-417.

concentrated along rivers and streams: 54% is located within 200m of a waterway. Sites were now either very small (15 instances) sites or quite large (7 instances). Four sites are singled out by Thompson, which he postulates may have been collection points for the tithe. This is motivated by their proximity to the main road and the disappearance of the monumental granaries of Morgantina, which served for collection in the Hieronian period.²⁰⁹ The imperial period (after 50 A.D.) is marked by continuity from the previous period, as identified by incidence of African Red Slip wares at the same sites.

The urban centre started to flourish after ca. 325 B.C., and was incorporated into the Syracusan kingdom of Hieron II, probably around 270 B.C. The *agora* was embellished greatly during this period, the most notable buildings that it boasted were two monumental granaries. Walthall has calculated their capacity and links them to Hieronian tithe collection.²¹⁰ Extensive layers of destruction were found throughout the site around the turn of the second century B.C. The city walls of 340-330 B.C. could contain ca. 6.000-12.000 inhabitants, but those of the second century could only encompass some 2000.²¹¹ Still, the town is marked as small but prosperous during the Late Republic. Many residences, however, were considerably smaller in this period, and the *agora* saw no more grand construction projects that had marked its (pre-)Hieronian phase, except for a *macellum* (meat market). In fact, many of the existing public buildings (the *stoai*, Central Sanctuary and East Granary) were turned into pottery kilns and/or ceramic workshops. The site was effectively abandoned by 50-25 B.C.²¹²

II.3d. Halaesa

Halaesa (Arcondiea) was a Sicilian-Greek city founded by settlers from nearby Herbita in 403 B.C.²¹³ The river Halycas (modern: Tusa), which marked the northern dividing line between Greek and Carthaginian territory runs through Halaesa's hinterland. The urban centre of Halaesa sat atop a small hill, approximately 1 km from the seashore.

A remarkable piece of evidence stems from ancient Halaesa: a large marble stele, containing an inscription of over 200 lines in Greek, now lost. The inscription provides unique insight into socio-economic relations: it was a descriptive land register which regulated the division of agricultural plots around the urban centre. Lots were grouped by sectors, and identified by reference to waterways, town walls, roads, sanctuaries and public

²⁰⁹ Thompson (1999) 444-457.

²¹⁰ Walthall (2013) 98-131, esp. 104-107.

²¹¹ Estimates are based on Gallant's theory of household sizes and exclude slaves.

²¹² Bell (2007) 121; Thompson (1999) 395; 414; 434-437.

²¹³ Diodorus, 14.16.

and private buildings. The final part of the inscription was more legal in nature; it provisioned for the election of public magistrates, presumably tasked to settle further disagreements pertaining to agriculture and land division.²¹⁴

The inscription consisted of two columns: the left described the northeastern suburban farmlands (figure 5) and the right column described the farmland southwest of the urban centre (figure 6). The southwestern area was the slope between the city walls and the river, into which many small streams fed to provide natural drainage. The land was mainly devoted to olives but also figs, pomegranates and pears were cultivated. The slopes were partially terraced to assist in drainage and irrigation. The eastern area corresponds to the alluvial plain of the river. The area was rather flat so drainage was provided by small aqueducts which consisted of clay pipes. Cultivation here was more varied and consisted of olives, grain, grapevines, orchards and vegetable gardens. Both areas were densely settled and cultivated. Plots were rather small, irregular and clearly demarcated. In both areas, livestock (goats and sheep) were also kept and pasturage was provided probably on fallow. A questionable term indicated the possible presence of an olive press.²¹⁵

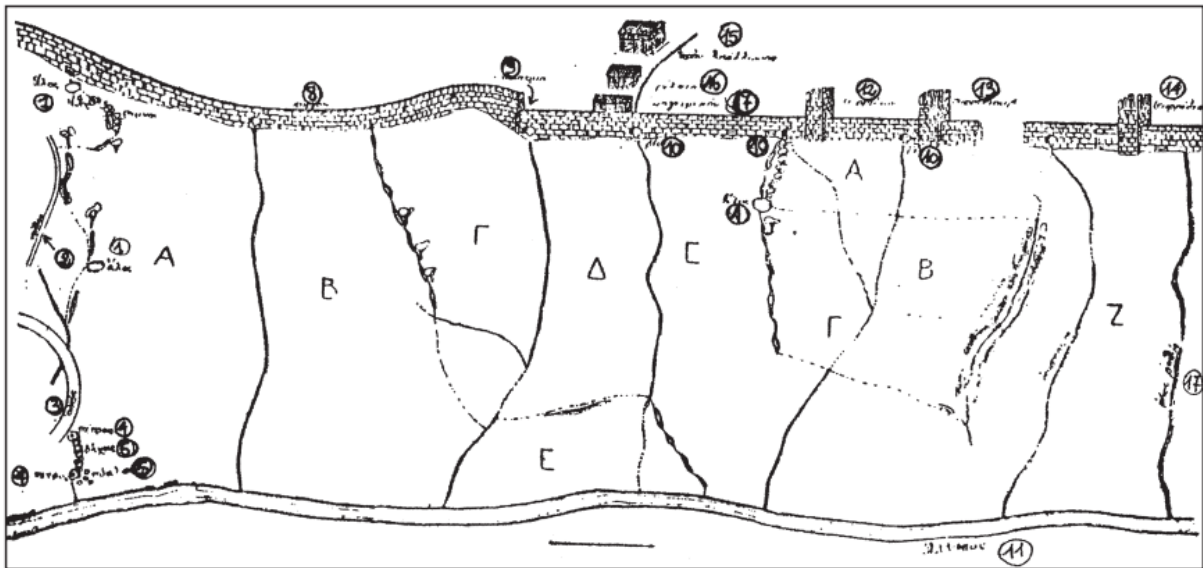


Figure 5: Interpretative drawing based on the *Tabulae Halaesae* of the western suburbs, on the slopes between the walls (top) and the river (bottom). Source: Barbera & Cullotta (2014).

²¹⁴ IG XIV.354; Prag (2007b) 255; Prestianni (2000) 449-450.

²¹⁵ Barbera & Cullotta (2014) 56-60.

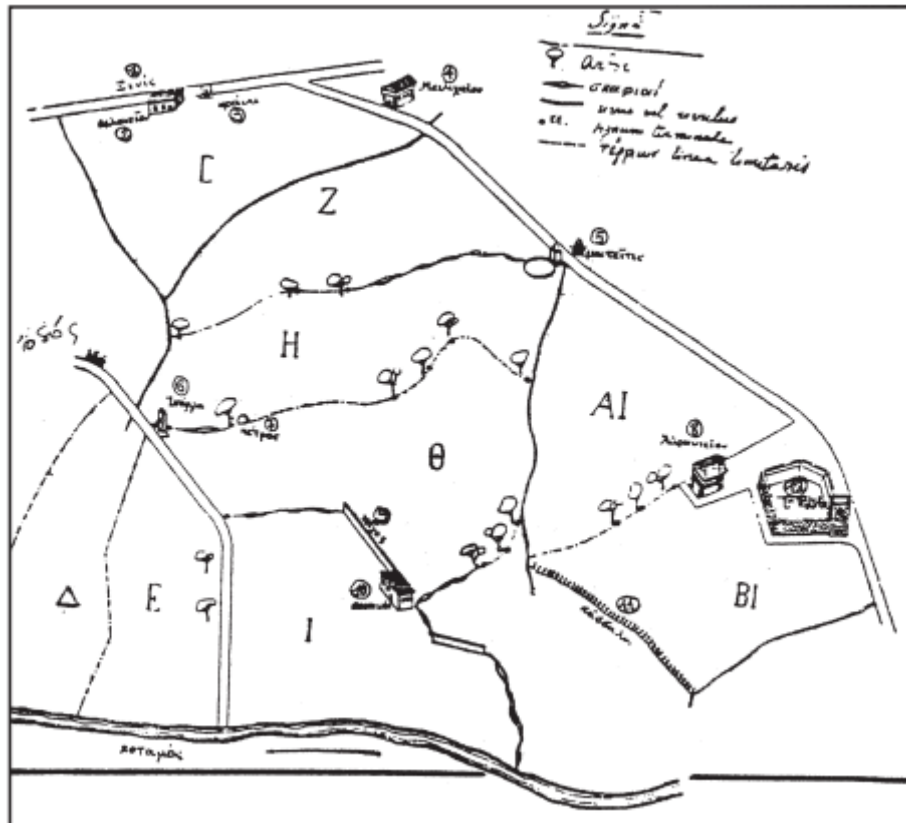


Figure 6: Representation of the northwestern suburbs from the *Tabulae Halaesae*.
 Source: Barbera & Cullotta (2014) 57.

Because the inscription is now lost, the dating remains insecure but certainly falls within the Roman-Republican era (ca. 200-30 B.C.). The inscription was linked to a redistribution of land.²¹⁶ The territory of Halaesa was subject to a field survey, which covered 20 km². Burgio has used the results to assess the historicity of the *Tabulae*: the roads, city walls and aqueducts that were found correspond to the inscription. The network of streams and ditches also exists still, but the river has shifted its course by ca. 350m. From the earliest occupation onwards (ca. 400 B.C.) settlement was densely concentrated in the agriculturally fertile and suitable areas. Also, the countryside is dominated in all periods by small and medium farms; landholding appears indeed fragmented. The sites were agricultural in nature, as attested, for instance, by finds of millstones. In the Roman-Hellenistic era, 68 sites are noted, the highest number of any period. This drops in the imperial period: to 39 in the first century A.D. and to 21 at ca. 300 A.D. There is not much evidence for the emergence of *villae*: only 1 site has been identified with certainty which belongs to the early imperial period. Burgio notes that 11 sites remained in use throughout the entire Roman period. These

²¹⁶ Barbera & Cullotta (2014) 56-57.

are in the most fertile and best-connected areas: only in times of expansion did habitation spread to the more marginal areas. There is an indication that the decrease in site numbers between the late Republic and early Empire correspond to a shift from isolated farmsteads towards rural settlement in agricultural villages.²¹⁷

A highly remarkable find in Halaesa's urban centre was a statue base with an honorary inscription for L. Cornelius Scipio (praetor of Sicily in 193 B.C.) set up by the resident *Italicei*.²¹⁸ Halaesa's rural prosperity was reflected in its cityscape. In the late second century B.C. the *agora* was embellished by a Π-shaped *stoa*. Around this time the city's main civic temple was either constructed or expanded on the acropolis. Six honorary and commemorative inscriptions were found on the *agora*, marking it as a location used for competition and euergetism by the local elite. The inscriptions date from the late third and early second centuries B.C.²¹⁹

II.4. Agriculture

In the paragraphs above, references were often made to land usage, agricultural production and modes of farming. The purpose of this paragraph is to offer more insight into the nature and the practicalities of Sicilian agriculture, as these determined economic situations to a large degree. In this paragraph, I will draw upon the ancient authors wherever possible as they are logically the best source on ancient agriculture, although they are sometimes subjective in their assessments. A good starting point is the climate, which determined the productivity of agriculture to a large degree.

II.4a. Climate and agricultural stability

‘As for the fertility of the country, why should I speak of it, since it is on the lips of all men, who declare that it is no whit inferior to that of Italy? And in the matter of grain, honey, saffron, and certain other products, one might call it even superior.’²²⁰

Already in antiquity, Strabo praised Sicily for its agricultural fertility. This, coupled with Sicily's propinquity to Rome, is how he explained Sicily's function as Rome's storehouse.

²¹⁷ Burgio (2014) 489-493.

²¹⁸ *CIL* I.612.

²¹⁹ Scibona & Tigano (2009): Scibona (1971).

²²⁰ Strabo, 6.2.7.

But moving past general observations proves difficult. Following Garnsey, I deem the climate of utmost in importance to ancient economies, as it greatly influences food production.²²¹ Cicero already expressed that 'agriculture is such, that is regulated not by reason or by labour, but by those most uncertain things, the weather and the winds.'²²²

The main Mediterranean crops: wheat, barley and legumes, were planted in fall (October) and harvested in summer (June and July), which is confirmed by Cicero as he stated that the tithe had to be brought in before August.²²³ The main factor that determines agricultural productivity is the amount and distribution of precipitation. The total requirements for wheat, barley and legumes between October and May are 300, 250 and 400 mm of rainfall respectively.²²⁴ Winter rain (December, January, February) is beneficial, as it nourishes the seeds. Spring rain (March, April, esp. May) is the most crucial factor, as nearly all crop growth occurs here. The Greek botanist Theophrastus already recognized spring rain as the key to the success of Sicilian cultivation. Summer rain (June, July, August) is detrimental, as it damages crops prior to and during harvesting.²²⁵

Two paleoclimatic investigations into Holocene variability can provide insight here. In the first, radiocarbon dating was used to investigate pollen found in 4.5 m core taken from the basin of Lake Pergusa (central Sicily, near Enna). Concentrations and typology of pollen provide insight into amounts and variations of annual, summer and winter precipitation, as these react strongly to variation in precipitation. Several samples were taken that correspond to 30-40 year periods within the last 11.000 years. Modern analogue technique (MAT) is commonly used in paleoclimatic studies to interpret the data by comparing it to a dataset consisting of 3600 European surface pollen samples (including 2200 from the Mediterranean). Comparison with the current climate proves necessary as it is only possible to reconstruct past climates upon comparison with the modern climate. The table below compares present-day mean annual precipitation (in mm) to that of 300-1 B.C.²²⁶ (derived from the graph of appendix II):

²²¹ Garnsey (1988) 11-16.

²²² Cicero, *Verr.* 2.3.227.

²²³ Cicero, *Verr.* 2.3.36.

²²⁴ Garnsey (1988) 10.

²²⁵ De Angelis (2000) 119-122; Theophrastus, *Caus.* 8.6.6.

²²⁶ Peyron et al. (2017) 251; Magny et al. (2012).

Date	Total	Summer	Winter	Spring and fall
Present-day	650	40	240	370
300 B.C.	670	40	230	400
200 B.C.	690	45	265	380
100 B.C.	690	35	265	390
1 B.C.	650	25	260	365

The climate was thus more favourable for agriculture in central Sicily in Republican period than it is today, as more rain fell in total and especially during the growth season. The relative scarcity of summer rain was a further contributing factor. But these are averages, and do not reflect more short-term variation. Between 1921 and 1993 (72 years), a total period of ca. 8 years was marked by drought (100-200 mm below the average level of precipitation), see appendix III. This means that drought occurred 11% of the time, or just over 1 out of 10 years. However, at a more local level these droughts are more frequent but generally less intense (less than 100 mm below average).²²⁷ These small scale droughts would therefore not necessarily incur harvest failure but would cause a decline in production. While this is by no means a true reflection of ancient agricultural viability, it provides the best possible reference based on the currently available evidence. It is only in the last decade or so that paleoclimatological investigation was performed (for Sicily) and before historians had to use modern climatic data that could not by any means be compared to past periods.²²⁸

The second paleoclimatic study incorporates the results of Lake Peragusa into a large interdisciplinary reconstruction of the climate at different areas of the Mediterranean. It denotes several distinct climatic periods within the Holocene: 2000-1 B.C. is one such period. This makes a comparison possible between the Sicilian and Central Italian climates, as similar investigation was carried out at Lake Accessa in southern Etruria (see appendix IV). There, annual precipitation was 10-25% lower than today, while summer and winter rain were comparable. This indicates a reduction in vital spring rain.²²⁹

In this section wheat, barley and legumes were designated to be the main crops in Sicily, but without justification. These three and several others will be scrutinized in the next section.

²²⁷ Cancelliere & Rossi (2003).

²²⁸ cf. De Angelis (2000); Garnsey (1988) 11-16.

²²⁹ Magny et al. (2017).

II.4b. On crops and yields

In I.3c we have established that whether farmers practice poly- or monoculture is linked to their economic outlook and socio-economic status. A good starting point for finding which crops were cultivated is archaeobotany: the study of fossilized plant remains. A study was performed at two cities in western Sicily: (Greek) Seliunte and (indigenous) Monte Polizzo. The evidence, however, slightly predates the period under consideration (ca. 600-300 B.C.) but are typical of ancient Mediterranean agriculture, as the Mediterranean triad (grain, olive oil and wine) is present. Both sites yielded remains of barley, durum wheat, figs and grapevines. Interestingly, the Elymian site also yielded emmer (grain), faba bean, oats and linseed, whereas the Greek site further yielded olives, lentils and bitter vetch (dry legumes).²³⁰ This distinction corroborates the notion that food was an important socio-cultural marker of identity (cf. 1.3a). In this section the primary crops will be considered, to provide a diversified but workable overview of Sicilian agriculture and its productivity. It is important to note that ancient agronomists mentioned seed/yield ratios rather than yields per area.²³¹ Therefore, the figures presented below are in part hypothetical, but are wholly based on the available evidence.

The primary crop cultivated in Sicily was wheat. Wheat was the preferred food grain in antiquity, and the variety grown on Sicily, *triticum durum*, described as the most prolific.²³² The environment of Sicily encourages monoculture of this crop, which thrives only with plentiful precipitation.²³³ The ancient authors are in accordance on a sowing rate of wheat of 5 *modii* per *iugerum*²³⁴, 6 in case of bad or moist soil and 4 for good soil.²³⁵ They disagree regarding the seed/yield-ratio:

²³⁰ Vretemark (2010) 176-177.

²³¹ Sallares (1991) 378; Garnsey (1998) 211-212.

²³² Pliny, *Nat.* 18.21.

²³³ cf. De Angelis (2000) 111.

²³⁴ 1 *modius* = ca. 8.75 kg; 1 *iugerum* = 2530m², just over a quarter hectare. cf. Pliny, *Nat.* 18.3.

²³⁵ Pliny, *Nat.* 18.55; Varro, *R.R.* 1.44.1; Columella, *R.R.* 2.9.1-2.9.2; Cicero, *Verr.* 2.3.112.

Source	Region	Seed/Yield	Notes
Columella, <i>R.R.</i> 3.3.4	Italy	1:4 or less	To demonstrate that viticulture is more lucrative
Pliny, <i>Nat.</i> 21	Byzacia (Africa); Sicily; Egypt	1:100	Possibly a reference to tillering ²³⁶
Cicero, <i>Verr.</i> 2.3.112	<i>Ager Leontinus</i> (Sicily)	1:8, if lucky 1:10	
Varro, <i>R.R.</i> 1.44.1	Italy (not specified)	1:10	He considers this normal
Varro, <i>R.R.</i> 1.44.1	Etruria	1:15	
Walthall (2013) 124	Sicily	1:10	Based on yield figures from 1270-1501
Pritchard (1969) 650	Sicily	1:14	Calculated from Cicero (see below)
Garnsey (1998) 204	Attica	1:4.8	Extrapolated from <i>IG</i> 2.1672, an inscriptions on grain offerings

Cicero gave ratios of 1:8-1:10 for the most fertile area of Sicily. Erdkamp accepts this figure, but Pritchard states that Cicero deliberately underplayed the productivity of Leontini (in 71 B.C.). According to Cicero, at Leontini 30.000 *iugera* was under wheat, the tithe was 180.000 *modii*, but the tax farmer (Apronius) paid 216.000 *modii* for the contract. Pritchard accepts the contract-figure, meaning that the 30.000 *iugera* produced 2.160.000 *modii*: a return of 1:12 if Cicero's sowing rate of 6 *modii* per *iugera* is accepted. However, Pritchard prefers a 5 *modii* sowing rate as the *ager Leontinus* was fertile, thus postulating a seed/yield of 1:14. Since the Leontine plain was regarded more fertile than the rest of Sicily, but Sicily was more fertile than Italy I postulate an average return of 1:7. My consideration is affected by the fact that the ancient authors described large scale farming, rather than peasant or tenant farming – which are lower in productivity, but underestimated in their extent.²³⁷ It also seems modern scholars (except Garnsey) fail to incorporate variation in precipitation into their considerations, which leads to overestimation.

The second-most cultivated grain in the ancient Mediterranean was barley. This crop was predominant in areas like Attica, as it is resistant to variations in temperature and rainfall. Therefore it may not have been as widespread in Sicily. Scramuzza calculated that the total amount of barley grown was 1/3 of the amount of wheat, which I accept.²³⁸ This is because barley thrives in dryer climates, and was as such unsuited for several regions in Sicily. The ancient sources do not report on the seed/yield of barley, but Garnsey calculated it to be 1:6 for Attica.²³⁹

²³⁶ Sallares (1991) 377; tillering is the practice of sowing very lightly so that each wheat-plant grows additional stalks. While it entails very high yields per plant, the overall yields of an area are rather low.

²³⁷ Erdkamp (2005) 35-37; 40-44; Pritchard (1969) 648-650; Cicero, *Verr.* 2.3.46-2.3.48; 2.3.64.

²³⁸ Scramuzza (1959) 268-269.

²³⁹ Garnsey (1998) 204.

A third and often overlooked category of crops is legumes. Inscriptions from Tauromenium in Sicily (ca. 150-100 B.C.) demonstrate that a magistrate who was establishing food supplies sought beans, not cereals.²⁴⁰ Theophrastus points out (ca. 300 B.C.) that legumes were not only cultivated in small gardens, but also in large fields. Most importantly, Theophrastus already displays the knowledge that legumes rejuvenate the soil – and cereal-legume-fallow-crop rotation was common in the (ancient) Mediterranean. Still, in Sicily a cereal-pasture-fallow rotation was probably more suited for revitalizing the land as animal husbandry was widespread (see below).²⁴¹

Wine was also produced in Sicily, but on a smaller scale than in Italy. The prime evidence for this is the large proportion of Italic imported *amphorae* sherds in Segesta (from the fourth century B.C. onwards)²⁴² and Monte Iato (74% in 300-130 B.C.; 58% in 130-30 B.C.).²⁴³ Wine (and olive oil) were also continually imported in Sicily during the Archaic and Classical ages.²⁴⁴ Wine production was regarded by the Roman agronomists as the most profitable of all crops. A *iugerum* of vines that produced less than 1-3 *cullei*²⁴⁵ was considered unproductive, but one that produced 5 very good.²⁴⁶ Pliny reported 7 *cullei* per *iugerum*, but Varro stated Italian soil could produce 10-15 *cullei* per *iugerum*.²⁴⁷ It is difficult to separate truth from myth here: wine cultivation was idealized by ancient authors and yields thus probably overstated.

The evidence for olive cultivation is slightly contradictory. At Segesta and Heraclea, large amounts of Punic pottery attest to oil imports from North Africa. Intensive contact between (Carthaginian) Sicily and North Africa must have provided Sicily with long-standing oil imports.²⁴⁸ But the *Tabulae Halaesae* mentioned the olive among the main crops.²⁴⁹ These local differences are illuminating: olive cultivation required extensive terracing or other forms of drainage in rainy Sicily. Substantial cultivation therefore occurred only in areas that were both densely populated and well drainable. Production of olive oil was therefore probably meant for local consumption. Pliny and Cato attest a planting density of ca. 30-45 trees per *iugerum*.²⁵⁰ The ancients do not state olive yields, but Mattingly – while noting their high

²⁴⁰ IG 14.423-14.430.

²⁴¹ Theophrastus, *Caus. pl.* 3.20.1; 4.11.8; 12.3.8; 16.1; Garnsey (1998) 210; 221-222; Pritchard (1972) esp. 647.

²⁴² Bernardini et al. (2000) 102-103.

²⁴³ Perkins (2007) 43-44.

²⁴⁴ De Angelis (2016) 269.

²⁴⁵ 1 *culleus* = ca. 517 litres.

²⁴⁶ Collumella, *R.R.* 3.3

²⁴⁷ Pliny, *Nat.* 14.5.52; Varro, *R.R.* 1.2.7.

²⁴⁸ cf. Diodorus 20.8 relates how Sicilians were impressed by Carthaginian olive groves.

²⁴⁹ cf. Barbera & Cullotta (2014).

²⁵⁰ Pliny, *Nat.* 17.93-17.94; Cato, *Agr.* 6.1; Mattingly (1994) 93.

irregularity – provides insight: for Italy the average yield is 15 kg of olives per tree. The pressing ratio for olives to oil is roughly 5:1.²⁵¹ Below is a summary of agricultural productivity per growing season. Numbers are in *modii* – except for wine.

Crop	Avg. seed/ <i>iugerum</i>	Avg. yield/ seed	Avg. yield/ <i>iugerum</i>	Net yield/ <i>iugerum</i>	Sources
Wheat	5	1:7	35	30	Pliny, <i>Nat.</i> 18.55; Cicero, <i>Verr.</i> 2.3.112
Barley	6	1:6	30	24	Pliny, <i>Nat.</i> 18.55; Garnsey (1988)
Legumes	3-6	-	-	-	Columella, <i>R.R.</i> 2.8.17; Varro, <i>R.R.</i> 1.44.1; Pliny, <i>Nat.</i> 18.55
Olives	-	(/tree) 1,7 (olives)	51-77 (olives)	10-15 (oil)	Cato, <i>Agr.</i> 6; Pliny, <i>Nat.</i> 14.5.52; Mattingly (1994) 93-99
Wine	-	-	4-7 <i>cullei</i>	4-7 <i>cullei</i>	Columella, <i>R.R.</i> 3.3.8

These are indicative averages, however, as the density of sowing was variable based on local soil type, precipitation and subsistence strategies (e.g. seed conservation).²⁵² The next section is aimed at providing more insight into factors that determined the productivity of ancient agriculture.

II.4c. On productivity and animals

A farmer could not sow a crop on the same land for two years in a row, as yields would dwindle as the land was deprived of nutrients. Fallowing prevents this problem. Based on the *Verrines*, it appears that the preferred mode in Sicily was a rotation of cereals (1 *iugerum*), pasturing (1 *iugerum*) and fallowing (0,5 *iugerum*) – a fallow coefficient of 2,5. Animals could pasture on the otherwise unused land and in turn manure the field, as was also recommended by Varro and Columella.²⁵³ It is likely that this strategy was adopted equally among commercial farmers and subsistence farmers, as both would have had reason to keep sheep as an attempt to increase their income or self-sufficiency without needing more land. Gallant noted that even the poorest strata of society endeavoured to keep animals. Small scale animal husbandry could provide a valuable addition to production of food and income (e.g. eggs, milk, wool, hides). Also, animals provided a buffer against famine, as they could be slaughtered whenever food crisis occurred.²⁵⁴ Archaeozoological analysis was performed at Monte Polizzo, but for the period 600-500 B.C. A total of 20.000 bone fragments from both

²⁵¹ Mattingly (1994) 97-99.

²⁵² Gallant (1991) 46-47.

²⁵³ Cicero indicated that all farmers who cultivated grain also owned livestock: *Verr.* 2.3.57; 2.5.15; 2.5.20; Varro, *R.R.* 1.4; Columella, *R.R.* 2.5.1; 2.9.14; 2.10.32; 2.14.3; Pritchard (1972) 646-647.

²⁵⁴ cf. Gallant (1991) 123-124.

domestic and public areas were analysed. Almost all of these came from domestic animals, but the most common wild animal was red deer. Sheep and goat made up ca. 52%, cattle 27% and pigs 21%.²⁵⁵ I deem a similar distribution likely for Republican Sicily.

Concerning labour requirements, we need to draw upon the agronomists again. 45 days work are given for cultivating 8 *iugera* (incl. 13 days of leeway). Columella expanded upon this, see the table below for number of labour-days required for 1 *iugerum* of certain crops:²⁵⁶

Crop	Ploughing	Harrowing	Weeding & hoeing	Harvesting	Total
Wheat	4	1	4	1,5	10,5
Barley	3	1	1,5	1	6,5
Beans	1-2	1,5	3	1	7-8
Other legumes	1-2	1	0-1	1	3-5

It is important to note, however, that these figures were meant for large farms, envisioned by the agronomists to be worked by slaves. The labour costs of peasant farmers would have been higher, as they generally focussed on diversified small scale production. Brunt based his estimate of how much land one man can work off Columella, provided he sows wheat exclusively, at 8 *iugera*. This limit is mainly established by the length of the sowing season.²⁵⁷ The prime method of increasing agricultural productivity was the use of oxen for ploughing. Columella and Cato imply that using them was standard, but it must have been more problematic for the peasantry. Using oxen would only be preferred when more land was available than labour, as oxen require large amounts of fodder (barley) or pasturage.²⁵⁸ Generally, peasant families had shortages of land, not of labour – making tilling preferable to ploughing. Varro transmitted from Saserna that one yoke of oxen was sufficient for 100 *iugera*. Pliny, however, estimated only 30-40 *iugera*. This indicates that the use of oxen was generally not possible for peasants, unless they borrowed or shared them communally.²⁵⁹

While the ancient economy was an agricultural economy geared mainly towards food production, it must not be forgotten that two other fields of economic activity existed: manufacturing and commerce. A brief overview of archaeological evidence for these follows.

²⁵⁵ Vretemark (2010) 174-176; Scramuzza (1959) 278-282.

²⁵⁶ Varro, *R.R.* 1.18.2; Columella, *R.R.* 2.4.8; 2.12.

²⁵⁷ cf. Brunt (1971) 124; 370; cf. Gallant (1991) 51.

²⁵⁸ Gallant (1991) 51-52; Cato, *Agr.* 70-73; Varro, *R.R.* 2 *passim*.

²⁵⁹ Varro, *R.R.* 1.19.1; Pliny, *Nat.* 18.173; Erdkamp (2004) 19-20.

II.5. Non-agricultural production and commerce

Several categories of non-agricultural production existed, but it seems none was focussed on long-distance exports like (wheat) agriculture. One is mining, which was only possible in the hills of the northeastern tip of Sicily.²⁶⁰ Most metal in Sicily must therefore have been imported, as noted by Finley, mostly in bullion for minting local coins.²⁶¹ Fishing is an activity which leaves very little archaeological traces, but must have been prevalent. A recent small scale survey identified several sites that were interpreted as fish-processing workshops on the southeastern coast, dated to the Hellenistic period.²⁶²

Three economic activities left more evidence: textile production, construction and quarrying. Textile production occurred in a domestic setting, as loom-weights were found at small sites (Segesta, Heraclea) and animal husbandry focussed on sheep. Cicero mentioned that when Verres demanded three hundred couches for his mansions, he had production set up in (wealthy) households.²⁶³ A collective study of loom weights in Sicily has listed only instances from the fourth and third centuries B.C. and some from the first two centuries A.D. This could be indicative of a decrease in textile production in the Roman era, but I feel this decline is purely historiographical – as the Republican period is simply understudied.²⁶⁴ Livy and Cicero related several instances where the Roman state bought quantities of Sicilian textile for its legions.²⁶⁵

As noted in the case studies above, something of a construction ‘boom’ occurred in the second half of both the third and second centuries B.C. These provided many labourers with relatively stable occupation. The decline of public building in the first century can therefore be linked to the decline of the cities from a political perspective but also a labour-perspective, leading to depopulation among rich and poor citizens alike. The prime mechanism behind public construction was the euergetism of local elites. Cicero mentions Sthenius of Thermae, ‘who decorated a town, not itself of the first rank, with most spacious places of public resort, and most splendid monuments, at his own expense.’²⁶⁶ The best evidence for euergetism comes from Iatas, Halaeasa and Lilybaeum and Segesta: besides buildings these sites also yielded epigraphic evidence that can be used to identify the benefactors. Euergetism did not

²⁶⁰ De Angelis (2016) 4; 97.

²⁶¹ Finley (1968) 17-18; Scramuzza (1959) 286.

²⁶² Idà & Musco (2014) esp. 218; 223-231.

²⁶³ Cicero, *Verr.* 2.4.59; this is evidence for the domestic nature of textile production, but probably also a moral argument; Verres set citizens of renown to work on his personal luxuries.

²⁶⁴ Meo (2015) 240-241.

²⁶⁵ Livy, 32.27.2 (198 B.C.); Cicero, *Verr.* 2.2.5 (91 B.C.).

²⁶⁶ Cicero, *Verr.* 2.2.112.

always materialize in civic monumental structures: at Soluntum, one Antallos Ornichas personally financed the paving of a stretch of the main street of the city. This act is commemorated by an inscription embedded into the street.²⁶⁷ Most of the building materials were locally produced. Large limestone quarries had been in use since the seventh century B.C., as evidenced by those in Selinunte and Syracuse. Marble does not occur naturally on Sicily and had to be imported. The decline of cities and large construction projects must have also lead to a decrease of quarrying activity.²⁶⁸

The most telling evidence for non-agricultural production and commerce comes from pottery. Three of the case studies saw an expansion of pottery production in the late third but especially the early second century B.C.: Centuripe, Tyndaris and Morgantina. Because of the problems of transport, most pottery was produced in proximity to good claybeds, as evident in Tyndaris.²⁶⁹ However, petrographic analysis of pottery produced at Morgantina indicates that volcanic sand from the eastern coast was specifically imported for production.²⁷⁰ The expansion of production could occur in rural (Campanaio near Heraclea), suburban (Centuripe) and urban (Morgantina) settings. The case of Campanaio indicates that pottery production was still growing by ca. 150 B.C., but that production declined near the end of the first century B.C., similar to Centuripe. Malifitana conducted a large-scale analysis of fine tableware in Sicily, and noted a shift in production in the Republican period that corroborates the evidence from the case studies. Until the early third century it was marked by fragmentation; pottery varied typologically per region, indicating only local production. During the third and early second centuries there was a shift towards standardization: black gloss ware, mainly Campana C, was produced on a larger scale at the cities listed above, but also at Iatas and Syracuse. At Morgantina, this production is documented best, as large monumental structures and smaller homes alike were turned into kilns and pottery workshops from ca. 200 B.C. onwards.²⁷¹

Amphorae remains provide insight into the extent and origin of the imports contained in them – in the case of Sicily mostly wine from Italy and olive oil from North Africa. North African *amphorae* occurred more frequently at the western Sicilian sites (Iatas, Segesta, Lilybaeum) but Greco-Italic types, and later Dressel I are found equally on the eastern and western halves (Centuripe, Iatas, Segesta). Finds of Rhodian *amphorae* as well as Ionian and

²⁶⁷ Campagna (2006) 112-113; *S.E.G.* XLI 836.

²⁶⁸ De Angelis (2016) 248.

²⁶⁹ Wilson (2012) 137-138.

²⁷⁰ Malifitana (2011) 192.

²⁷¹ Malifitana (2011).

Ephesian products attest of Sicily's long-standing commercial links to the Eastern Mediterranean.²⁷² Interestingly, these Rhodian imports cease at differing dates at various cities. Polybius mentions that in 169, Rhodes asked Rome permission to import 600.000 *modii* of grain from Sicily.²⁷³ This might suggest that Rome, formally or informally, monopolized Sicilian exports – at least in case of food – which would have stifled Rhodian incentive to sell their products in Sicily.

II.6. Conclusion

Presented below is a table which summarizes the developments of the eight regions under study, which will be drawn upon in the following three chapters. Not all consulted reports provide definite site numbers for every period. This is not always possible, as some sites defy conventional chronologies or lack indicative material. Whenever possible, I will provide site numbers but it should be noted that these are still indicative rather than absolute. A tilde (~) is used to denote when the changes of a period are split in two to conform to the table's chronology, but this is only done when justifiable. For the urban situation I indicate expansion in the case of: public energetic construction, expansion of defensive walls and/or expansion of built-up area. For decline, I draw upon: destruction or burnt stratigraphic layers, contraction of defensive wall circuits and abandonment of previously inhabited areas.

Region	300-201 B.C.	200-101 B.C.	100-1 B.C.	1-100 A.D.
Segesta: <i>rural</i>	Increase: 215 to 235	Decline: 235-195	Decline (40-50%)*	Decline (40-50%)*
Segesta: <i>urban</i>	Stable period	Urban expansion	Stable period	Urban decline
Iatas: <i>rural</i>	Decline: 30 to 28	Increase: 28 to 34	Stable period	Increase: 33 to 37
Iatas: <i>urban</i>	Urban expansion	Urban expansion	Stable period	Urban decline
Heraclea: <i>rural</i>	Increase: 5 to 6	Increase: 6 to 11	Increase: 11 to 12	Decline: 12 to 2
Heraclea: <i>urban</i>	Urban expansion	Urban decline	Urban decline	Abandoned
Lilybaeum: <i>rural</i>	Increase: 4 to ~14	Increase: ~14 to 24	Stable period	Increase: 24 to 26
Lilybaeum: <i>urban</i>	Stable period*	Stable period*	Stable period*	Urban expansion
Centuripe: <i>rural</i>	Increase: 2 to ~11	Increase: ~11 to 17	Stable period	Decline: 17 to 9
Centuripe: <i>urban</i>	Urban expansion	Urban expansion	Urban decline	Urban decline
Tyndaris: <i>rural</i>	Increase: 26 to 31**	Increase: 31 to 34**	Decline: 34 to 31**	Increase: 31 to 33**
Tyndaris: <i>urban</i>	Stable period	Urban expansion	Urban expansion	Urban expansion
Morgantina: <i>rural</i>	Increase: ~40 to 47.	Decline (40-72%)*	Decline (40-72%)*	Stable period
Morgantina: <i>urban</i>	Urban expansion	Urban decline	Urban decline	Abandoned
Halaesa: <i>rural</i>	Increase: 3 to ~24	Increase: ~24 to ~43	Increase ~43 to ~68	Decline: 68 to 39
Halaesa: <i>urban</i>	Urban expansion	Urban expansion	Stable period	Stable period

²⁷² Malifitana (2011) 195.

²⁷³ Polybius 28.2.

Chapter III: Initial Conquest (241-210 B.C.)

This chapter and the next two will compare and unify the literary account of Sicily's socio-economic development with the theory of chapter I and the archaeology of chapter II. Note that most statements derived from the dataset of chapter II will not be referenced explicitly in chapters III to V, as notes were already provided above.

In this first phase (241-210 B.C.) only western Sicily was subject to Rome, but the rest of the island was drawn into Roman influence. This could be through treaty, like Tyndaris, or through Hiero's Syracusan client kingdom. No socio-economic analyses of this period have been attempted, but through synthesis of literature and archaeology it becomes possible. To be able to achieve this in a historically sensitive manner, I will first consider the political context: the Roman conquest of Sicily. This context has been studied before, but this has led to several misconceptions. I will refute and correct these (III.1 and III.2) before analysing the Sicilian interwar economy (III.3), as to prevent drawing false conclusions.

III.1. Political context

III.1a. The First Punic War

Sicily was the site of Rome's first military expedition outside of Italy. In 264 B.C. a Roman expeditionary force crossed the strait of Messina to aid the Mamertines, Campanian mercenaries who had captured the city of Messina in 288 B.C. When Hiero succeeded to the throne of Syracuse, he defeated them in battle in ca. 268 B.C. Consequently, the Mamertines appealed to both Rome and Carthage for assistance. Rome sided with the Mamertines and Carthage with Syracuse, which caused the First Punic War in 264 B.C.²⁷⁴ When taking a side, the Romans did not anticipate to what extent this conflict would escalate. Still, Polybius makes it seem as if Rome intended to conquer Sicily from the start, as he states that: 'the military commanders suggested that individually they would get manifest and important benefits from it.'²⁷⁵ Some scholars have taken this as an indication that exploitation of Sicily was among the earliest considerations of foreign warfare.²⁷⁶ This assumption is problematic as it can shape the historian's frame of thought concerning the nature of Roman administration and exploitation after 241 (see below). Finley, however, stated that extended war was

²⁷⁴ Serrati (2000) 110-111; Polybius 1.7-1.9.

²⁷⁵ Polybius 1.11.2.

²⁷⁶ e.g. Scramuzza (1959) 228.

definitely not planned, as ‘Rome did not want to fight more than a season or two’.²⁷⁷ This is much more in line with Roman pre-Punic War strategies. Baronowski has demonstrated that Polybius believed that in most cases imperialism was a noble pursuit by virtuous men, and that the Roman imperial achievement, aggressively pursued and justified on plausible pretexts, was particularly moderate and beneficial. In light of this, Polybius’ claim seems to be based on his notion of the inevitability of Roman domination, and does not reveal any intent on extracting economic gain from Sicily at this point.²⁷⁸ Rome claimed her victory in 241 B.C., after the war had laid waste to territories in a band from east to west over the island. Some cities escaped destruction by surrendering to the Romans before a siege even started. In the cases of Iatas and Tyndaris (and Solus, Enattaros and Petra) the citizens even expelled the present Carthaginian garrisons.²⁷⁹ Still, campaigning armies would forage and pillage the countryside for supplies, as external provisioning was rarely sufficient.

III.1b. The interwar period

In light of the incidental nature of the advent of the First Punic War, it follows that Roman occupation of western Sicily between the first two Punic Wars (241-218 B.C.) was due to purely military considerations. Two conflicting opinions exist here: Serrati infers an increasing Roman presence and exploitation already in this period, but Prag points out the problematic nature of the sources. For instance, it remains unclear whether Rome installed a praetor permanently in Sicily. In 227 B.C., two extra praetors were appointed and sent to Sicily and Sardinia (conquered in 237 B.C.).²⁸⁰ But the inference that these were sent annually is basically an argument from silence. Appian related that a *strategos* was sent annually to Sicily already from 241 B.C. onwards, whereas Livy recorded a tribune claiming in a senate meeting that Sicily had no need for magistrates.²⁸¹ Only once were Roman troops in Sicily mentioned, as a result of *tumultus* (225 B.C.).²⁸² What emerges is a picture of *ad hoc* government – not geared towards exploitation but reacting to specific needs as they arose.²⁸³ Conversely, Serrati implies a stable Roman military presence (two legions) on the island in the interwar period, along with (provincial) administration.²⁸⁴ I accept the presence of Roman troops, as the shift from only seasonal expeditions to long-term deployment of legions (i.e.:

²⁷⁷ Finley (1968) 114.

²⁷⁸ Baronowski (2011) 65-86, esp. 68-69.

²⁷⁹ Didorus 23.18.5.

²⁸⁰ Livy, *Per.* 20.

²⁸¹ Appian, *Sik.* 2; Livy 22.25.6.

²⁸² Polybius 2.24.13.

²⁸³ Prag (2007a) 72, cf. we know only of three praetors in 227-218 B.C. and none of those was in Sicily.

²⁸⁴ cf. Serrati (2000) 115-133, but esp. on 120-121 Serrati does recognize that Sicily was still formative for, rather than subject to, Roman provincial administration, which is incongruent with his other claims.

winter-quartering) was already made in the First Punic War. Also, the occupation of western Sicily was motivated by the danger of Carthaginian invasions. However, Prag is right in demonstrating that Roman administrative structures for this period are retrojections by ancient and modern historians alike – not in the least based on the concept of *provincia*, which is anachronistic for this early phase. *Provincia* at this time was rather the field of operation assigned to a magistrate – therefore tied to him personally than to Rome structurally. The tying of *provincia* to a certain geographical area came only after the conquest of parts of Hispania (197 B.C.). The previous provinces were all islands, negating the need for formal borders.²⁸⁵ The central economic matter of Roman early administration was taxation, and the next paragraph is devoted to this.

III.2. On tribute

Another difficult phenomenon is the probability of existence of a Roman agricultural tax (in kind) in this period. Before assessing scholarly notions, it is crucial to review the sources. Livy states (about 215 B.C.):

‘that Sicily and Sardinia, which before the [Second Punic] war had paid taxes in kind, were hardly feeding the armies that garrisoned those provinces; that necessary expenses were met only by property tax.’²⁸⁶

Appian relates:

‘The latter [Romans] levied tribute on the Sicilians, and apportioned certain naval charges among their towns, and sent a praetor each year to govern them. On the other hand Hiero, the ruler of Syracuse, who had cooperated with them in this war, was declared to be their friend and ally.’²⁸⁷

Serrati states that the Romans instituted an agricultural tithe immediately, based on the above citations but also on Polybius, who stated that the Romans sent a *decemvirate* commission for the initial occupation of Sicily (241 B.C.) – akin to the commission that accompanied Rupilius for the forming of a provincial law in 132 B.C. (see IV.2). This interpretation is false, however, as the *decemvirate* of 241 was appointed to renegotiate the peace treaty of the

²⁸⁵ cf. Lintott (1993) 22-23.

²⁸⁶ Livy 23.48.6-23.48.7.

²⁸⁷ Appian, *Sic.* 2.2.

First Punic War rather than establishing provincial government in Sicily.²⁸⁸ Serrati also argues that tithe systems already existed in western Sicily under Carthaginian rule, and were simply continued – but the source, Diodorus, does not specify the kind of tax levied by Carthage.²⁸⁹ Scramuzza goes as far as to state that this Carthaginian tax amounted to 30-40% of total agricultural production, but no source is cited.²⁹⁰ This is to be rejected immediately, such heavy taxation would surely have ruined many farmers while the surveys show rural expansion rather than contraction under Carthaginian dominion (before 264 B.C.). Besides, Whittaker found that these tributes (*phoros*) were more likely to be (temporary) indemnities, based on the character of Carthaginian imperialism.²⁹¹ Serrati's arguments for Carthage already levying a tithe akin to that of Hiero remain based on conjecture.²⁹² Similarly, Rome's dominion was based on asymmetrical alliances with cities than rather direct exploitation, as the Italian *socii* were its model.

Critical examination is required for the sources cited above,. Appian, in respect to 241 B.C., should be regarded anachronistic. This is noted by Prag, but interestingly also by Serrati:

‘Although the passage also says that a praetor was installed in this year, a statement we know to be false, as evidence already cited clearly states a praetor was not present until 227, that does not mean Appian should be discounted entirely; Livy (23.48.7) states that prior to the Second Punic War, the Sicilians had paid taxes to Rome in kind.’²⁹³

Livy seems more clear on the matter, but the translation used is misleading. *Vectigales* is translated by tribute in kind, but the term *vectigal* was universal for any income to the Roman state.²⁹⁴ Also, Livy notes that the expenses for providing army supplies were met by the property tax. This last part is illuminating, as I interpret the tribute in question to have been a monetary tax, akin to the property tax. This money could be used to purchase supplies for the troops on the market, as the number of Roman troops present was variable – as were their needs.²⁹⁵ Rome would only acquire a steady food supply for its soldiers decades later (see IV.4b). Moreover, right after the First Punic War, Rome was in need of money rather than

²⁸⁸ Polybius 1.63.1-1.63.3; Serrati (2000) 122.

²⁸⁹ Diodorus 13.59.3; 13.114.1; 14.65.2.

²⁹⁰ Scramuzza (1959) 237.

²⁹¹ Whittaker (1978) 72-74.

²⁹² Serrati (2000) 124-126.

²⁹³ Serrati (2000) 124.

²⁹⁴ W. Smith, *A Dictionary of Greek and Roman Antiquities* (1875) 1184-1185.

²⁹⁵ cf. Erdkamp (2000) 60-61; Garnsey (1988) 182-183.

food. Polybius notes that the state treasury was completely empty, and Catulus' fleet, which won the final victory, had to be funded by private donations.²⁹⁶ Finally, both Livy and Polybius described a Roman embassy to Alexandria to secure food supplies in 211 B.C. The causes were Hannibal's occupation of Italy and (therefore) a sharp rise of the price of wheat – measured in Sicilian *medimnoi*.²⁹⁷ Serrati takes this as evidence that Sicilian grain had reached Rome, but very little since 214 B.C. It is likely that Sicilian grain had arrived in Rome in bulk, either regularly or only in case of shortage.²⁹⁸ The most likely medium was not state redistribution, however, but market exchange (see III.3b.). Now that misconceptions of the political context have been rectified the interwar economy can be analysed.

III.3. The Sicilian economy during the interwar period

III.3a. Settlement, cities and agriculture

The archaeological record indicates regional variety. The briefness of this period makes drawing exact conclusions from surveys difficult. Still, in connecting the archaeology with literary references it is possible to trace historical development. As noted above, the start of the interwar period for each city was determined by its location. For the eastern-most cities, fighting stopped around 261 B.C., whereas for the northwestern cities respite came only in 249 B.C.²⁹⁹

Western Sicily was marked by continuity with the preceding period. At Segesta there was a small increase in sites (ca. 215-235), but substantial growth had already occurred in the fifth and fourth centuries. Segesta's territory is one where larger farms already started appearing after 300 B.C., at agriculturally viable locations close to the navigable river. Cambi observed that these larger estates resemble the *epilaus* mentioned by Diodorus as typical of Greek countrysides. These large farmsteads had corner towers, which was recognized by Fentress' *villa* (II.1d) is a good example, even though it was larger than average. It has a Greek form, even though it belongs to the Roman era.³⁰⁰ At Iatas dramatic rural expansion came in 300-250 B.C. (13 continuing sites, 17 new ones) despite of heavy fighting in the area in the Pyrrhic and First Punic Wars.³⁰¹ 250-200 was less

²⁹⁶ Polybius 1.58.9.

²⁹⁷ Polybius 9.11a; cf. Livy 27.4.10; 1 Sicilian *medimnos* = ca. 6 *modii*.

²⁹⁸ cf. Garnsey (1988) 182-197.

²⁹⁹ Diodorus 23.

³⁰⁰ Cambi (2003); Van Dommelen & Bellard (2008) 208; 211; 216; other *epaulis* are found in modern Tunisia; Fentress (1998); Diodorus 5.19.2; 11.25; 12.43.1; 12.45.1; 12.78.2; 13.81; 20.8.4; 20.80.4; 20.83.4; 34; 35.2.

³⁰¹ cf. Diodorus 22.10.4.

dramatic: 4 sites were abandoned but 2 new ones were founded, therefore it appears that population and agricultural extent remained stable. In the territory of Heraclea Minoa there were no new sites founded between 250 and 200 B.C., but existing remained occupied. These sites lie close to the city, but it appears that most farmers lived inside the city walls and farmed the nearby floodplain. This practice was continued from the preceding phases, as those were marked by urban expansion but no increase in the number of rural sites. This was due to the insecurity of the lands surrounding this coastal site, which lies right opposite Carthage. In 260 B.C. Hanno's 56.000-man army occupied Heracleian territory and fought battles there. In 256 and 249 B.C. large Carthaginian navies were posted at Heraclea as well.³⁰² A new, smaller circuit of walls was built at Heraclea around 250 B.C, and indicates that the town lost some of its population in the Phyrriic and Punic Wars.

Characterising Lilybaeum for this period proves challenging. The survey reports do not precisely date the emergence of rural sites, but attribute them to the third and second centuries B.C. Then there is the matter of dating the centuriation, for which I propose two possibilities. The first is 241 B.C., when centuriation would have been carried out for military purposes (i.e.: settling peasant-soldiers). Sometime before, the Romans had surveyed the territory of *colonia Ariminum* after conquest in 268 B.C., to fortify their hold Cisalpine Gaul.³⁰³ However, the absence of Roman colonies in Sicily before the Augustan period makes this unlikely, even though Lilybaeum was the city with the largest Roman presence in Sicily.³⁰⁴ The other option is dating the centuriation to 210 B.C. – in line with the consul Laevinius' tour around Sicily, with the aim of increasing agricultural production after the devastations of the Second Punic War³⁰⁵ (see IV.1). The rationale behind centuriation then was to stimulate grain production for extraction through tithe. I deem a date of 210 B.C. most likely. Firstly, due to the absence of *colonia* in Sicily, which indicates that Roman defence was provided by stationed legions rather than settlement of citizen-soldiers. Secondly, Roman policy in western Sicily for this period was not motivated by exploitation, as I deem an early tithe unlikely.

For eastern Sicily, 241-210 B.C. was not marked by stability or small increases but rather by quite dramatic increases in site numbers and thus agricultural extent. This was also reflected in the urban landscapes. Centuripe was among the first cities besieged by the Romans in the First Punic War. But when seventy-six other cities, including Halaesa, came to

³⁰² Diodorus 23.8; Polybius 1.25-30; 1.53.

³⁰³ Livy, *Per.* 15.; Mansuelli (1941).

³⁰⁴ Due to the presence of Roman magistrates, soldiers, traders (III.1, III.2) and the Italic-style house (II.2d).

³⁰⁵ Livy 26.40.

offer their allegiance and troops, it seems the consuls broke up the siege and marched straight for Syracuse. Upon their arrival, Hiero too joined their cause.³⁰⁶ Centuripe was thus spared, which is affirmed by the archaeological record. The urban area expands in the third century B.C. and the number of sites increases from 2 to at least 5 and most probably 11. The territory had often been a theatre of war, and the respite offered by Roman dominion in Sicily allowed settlement and farms to dissipate further from the city. This agricultural expansion in turn infers an increase of food production and serves as an explanation for the urban growth mentioned above. The documentation on Halaesa makes it even more difficult to draw conclusions, but must have been similar to that of Centuripe, considering Halaesa was the first to offer its voluntary surrender to Rome.³⁰⁷ Tyndaris displays a similar development too. Figure 4 indicates that the main increase in site numbers there occurred in the fourth century, right after the urban centre was founded, but that in the third century the number grew from 26 to 31 – but imprecisely dated sites are not incorporated here. I deem it highly probable that a large number of undated sites appeared in the interwar period, because Tyndaris enjoyed Roman protection from an early date (254 B.C.) and was subjected to no foreign taxation. This picture of early growth is confirmed by the trend of accurately dated sites (see figure 4 and II.6). The territory of Morgantina was already intensively cultivated before, but the main shift discernible for 400-200 B.C. is one towards more permanent rural habitation. This development indicates increased security offered by Hiero's allegiance to Rome. The monumentalization of urban space points towards an urban elite that invested in euergetism, financed by agriculture rather than trade or industry. Evidence here are the large monumental granaries on the *agora* and the absence of imported pottery.

Initially one could suppose that Walthall was right to postulate that Hiero's title increased agricultural productivity. However, large expansions of rural settlement occurred at Centuripe and Tyndaris too, which did not belong to the Syracusan kingdom. I base my claim on the map provided by Walthall, which depicts the extent of Hiero's realm based on archaeological evidence (Hieronian coins, standardized measures etc.), see map 7. I deem the increased security of the period between the first two Punic Wars more important. Most farmers were peasants, and they would neither market more of their produce after a tenth was taken nor would they switch to monocultural production. However, their production would increase once their homes and farms were not limited to defensible areas, so more fertile lands would become available for settlement. Rome made this possible, after enforcing peace on the

³⁰⁶ Diodorus 23.4.

³⁰⁷ Diodorus 23.4.

island. Roman military might had made an impression on the Sicilian cities, some of whom only dared to oppose this when it wavered in the Second Punic War (215 B.C.).³⁰⁸ It was the new politico-military situation instigated by the Romans and Hiero's grain diplomacy, rather than commercial stimuli of the tithe administration that led to substantial agricultural growth in eastern Sicily (241-210).

The rural landscapes of western Sicily saw only modest growth or stability, which leads to two conclusions that are affirmed by the literary sources. Firstly, the western Sicilian countryside faced more extensive and long-lasting devastation than that of eastern Sicily. For instance, Segesta, Tyndaris and Iatas expelled their Carthaginian garrisons and joined the Roman side at first chance although Carthage did besiege these cities. Still this spared these cities from the utter devastation the Romans' wrought on cities that opposed them, like Panormus and Agrigentum.³⁰⁹ The case of Heraclea shows that the farmers of western Sicily were less safe than those of the east in the interwar period. Secondly, it appears that Roman taxation was relatively light in this period but that Carthaginian taxation as light as well, as Segesta and Iatas had seen dramatic rural expansion under Carthage. The combination of these explains the stability after the devastations of the First Punic War, which would otherwise surely have incurred a decline. This can be seen at Morgantina, which joined Hieronymus' secession from Rome in 214 B.C. Rome punished this city in such a manner that it never re-attained its former population or prosperity.³¹⁰

Due to the absence of an early tithe ratified in III.2, commerce flourished during the interwar period. I will support this claim in the following section.

³⁰⁸ cf. Scramuzza (1959) 227; 232.

³⁰⁹ Diodorus 23.5-8; 23.18.5.

³¹⁰ Livy 24.36.10.



Map 7: Findspots of standardized Syracusan measures and the probable extent of the Syracusan kingdom under Hiero II (268-215 B.C.). Source: Walthall (2013) 259.

III.3b. Commerce

Concerning trade, the period is marked by local differences as well. Pottery remains reveal these for Iatas and Morgantina, both inland hill-top cities. At Iatas, the absolute majority of *amphorae* sherds found originated in Italy, whereas in Morgantina until 200 B.C. only one imported sherd was found. Granted, Iatas was located closer to the coast, but taking this as the only factor is too deterministic. For instance, Rhodian *amphorae* have been found in this period at coastal Heraclea, but also at inland cities like Segesta and Centuripe.

This is a good place to return to market integration, which is the capability of the market to connect supply and demand spatially but also temporally (cf. I.1a). Temin's characterization of an integrated market that stretches the entire Empire is highly anachronistic. Erdkamp offers a more nuanced view on the integration of the grain market. Generally he perceives a low degree of market integration – reflected in highly fluctuating prices. This is due to five factors inherent in the ancient economy. Firstly, the relevant figure for supply is not the total harvest, but the surplus after farmers consumed their needs and subtracted seed corn – the actual tradable proportion was therefore low. Secondly, the harvest was unpredictable due to the weather. Thirdly, because grain was harvested once annually but consumed year-round, it was cheap after harvest but prices doubled or tripled right by late

spring. Fourthly, transporting grain to other regions or storing it for later involved high costs. Lastly, traders faced a lack of information on both distant markets and the future (i.e. the outcome of next harvest). These discouraging factors should not be confused with NIE's transaction costs, as they are not imposed by institutions or socio-cultural constraints but rather by the nature of ancient agriculture and transport.³¹¹ However, these factors are corroborated by the elite's negative notions on commerce and preference for a regular income.

For Sicily in the interwar period, however, it seems that these constraints were limited in their extent. Most importantly, Sicily's rainfall was more abundant and stable than that of other regions. Sicily's harvests had always been more prone to be disrupted by warfare and insecurity rather than the climate, but from 260-250 to 215 B.C. Rome enforced peace. Rome's demand posed no constraint, as between 270 and 130 B.C., Rome's annual grain consumption rose from ca. 4-5,5 million to 8,5-11,5 million *modii*.³¹² Most importantly, the tithe was limited to Hiero's kingdom. As such, only a part of the total surplus was removed from the market and put into service of politics; Hiero's grain diplomacy.³¹³ In the Roman West, farmers did have to sell a part of their harvest to meet monetary taxes. This might have deterred peasants to sell more of their surplus, as they strived for self-sufficiency but in good years they might be able to put more to market as taxation proved rather light. But especially middling and commercial farmers were provided with an exceptionally favourable environment for marketing produce.

Two literary references can support my claim. The first is Polybius' statement noted above:

'all the crops in Italy up to the gates of Rome having been destroyed by the armies, and no help from abroad having been forthcoming, since all over the world except in Egypt there were wars in progress and hostile forces in the field. The scarcity at Rome had reached such a pitch that the Sicilian *medimnus* cost fifteen *drachmae*.'³¹⁴

Serrati took this as evidence for Sicilian grain reaching Rome through state redistribution, but market exchange seems a more likely medium. A second reference is Hiero's mention 'that Lilybaeum and the cities of the coast were in great danger, and that some of them would

³¹¹ Erdkamp (2004) 143-147.

³¹² Garnsey (1988) 191; based on Brunt (1971) 69, as working estimates for population figures. Garnsey employs 30 *modii* per head per annum.

³¹³ Garnsey (1988) 183-186.

³¹⁴ Polybius 9.11a, on 210 B.C.

welcome a revolution.³¹⁵ The most likely interpretation for discontent is that Rome was not guarding the traders and shippers from the looming Carthaginian navy.³¹⁶ Finally, the elaborate financial inscriptions from Tauromenium (cf. II.4b) show that this relatively small city was exceptionally rich. The inscriptions date between 150 and 100 B.C., but since Tauromenium was exempt from the tithe and situated close to Italy, interwar conditions prevailed there.³¹⁷

III.4. Conclusion

During the interwar period, western Sicily is marked by stability in site numbers rather than the increases that occurred in the preceding Carthaginian period. Eastern Sicily saw a large expansion of rural settlement. The survey reports (except for Morgantina) are too imprecise to pinpoint this development to ca. 260-210 B.C., but upon incorporation of the political context inferred from the literature I deem this conclusion grounded. The increases in site numbers in this period were due to an increased degree of security, allowing farmers to live further from the city and nearer to fertile land. This is most clear at Morgantina due to the detailed survey report. In western Sicily, the absence of increased rural settlement was due to the Carthaginian threat to the new Roman province. The First Punic War also wrought more devastation on the west. Heraclea is the best example here, but Segesta, Iatas and Lilybaeum had all been sieged in the war.

It was difficult to draw conclusions on the rough chronologies of the surveys, but the ancient historical sources provided more insight. The *amphora* remains from different regions (Iatas, Centuripe) helped to disprove the existence of an early tithe as inferred from the anachronistic account of Appian.

Finally, by interpreting from a substantivist perspective, it follows that the security by Hiero's corn diplomacy stimulated Sicilian agriculture. Hiero successfully used the economy of his kingdom towards political ends. This in counter to Walthall's perspective based on NIE, which attributes decreased transaction costs to the tithe-administration. But at Morgantina (400-200 B.C.) only one piece of imported pottery was found, indicating little long distance trade. Most evidence for trade comes from Iatas, Centuripe and Heraclea, which were not subjected to a tithe. Peasants would not be more inclined to sell their surpluses after ten per cent had been taken away, seeing as they employed risk-minimizing strategies.

³¹⁵ Livy 20.50.10; Cicero, *Verr.* 2.3.13.

³¹⁶ Scramuzza (1959) 231-233.

³¹⁷ Scramuzza (1959) 310; *I.G.* XIV.423-430.

Chapter IV. A Roman province (210-100 B.C.)

This chapter adopts the same approach as the previous, which entails duly contextualising the instigation of this period (IV.1) before analysing the Sicilian economy. In this analysis, the traditional literary narrative will be refuted and nuanced by drawing upon the archaeological record (IV.2). The Roman adoption of the *Lex Hieronica* requires consideration as this was the primary mechanism of economic interaction between Rome and Sicily. But a satisfactory consideration can only be achieved by taking note of the developments behind the *Lex* to prevent the generalisations on Republican Sicily that Walthall incurred³¹⁸ (IV.3). Afterwards, the implications that the tithe had for the Sicilian economy will be studied (IV.4).

IV.1. Political context

The Second Punic War wrought even more destruction upon Sicily than the first. Although the period of fighting on the island was more brief (215-210 B.C.), this time the Romans combatted Sicilian cities, rather than Carthaginian armies and garrisons. Livy tells of the complete destruction of Leontini, Megara and Enna – including decimation of the population. The same held true for large parts of Syracuse, and Agrigentum again faced heavy sieges.³¹⁹ At the latter two much of the land and property was confiscated. Furthermore, Carthaginian cavalry raids plagued the territory of cities that did remain loyal to Rome, burning fields and orchards.³²⁰ The Sicilian phase of the war was instigated when several cities, seeing Roman power in Italy waver, seized the opportunity to revolt.³²¹ The most notable of these was the Syracusan kingdom (215 B.C.), which joined Hannibal's alliance under Hieronymus, Hiero's grandson and successor.³²² The causes for defection from Rome are hard to pinpoint as the picture that emerges from chapter III is one of economic prosperity and local autonomy.³²³ The most likely reason would be Sicily's proximity to Carthage, which quickly regained strength in the interwar period, and therefore incited fear of invasion (cf. III.3b).

Laevinus was sent to Sicily as proconsul in 210 B.C. He quickly subdued the province and afterwards embarked on a tour of the province. The first order of business was bestowing 'upon the leading men of these states [Sicilian cities] the reward or penalty that each

³¹⁸ Walthall (2013) esp. 132; 141; 147; 183-184.

³¹⁹ Livy 24.30.14; 24.35.2; 24.37-24.39; 25.25; 26.40.13.

³²⁰ Livy 26.21.15; 26.40.4.

³²¹ Livy 22.61.

³²² Livy 24.4-24.5.

³²³ cf. Scramuzza (1959) 232.

deserved.’³²⁴ This indicates that some loyal cities attained privileged status at this time – which is confirmed by Cicero (cf. IV.3b) – while others retained the one they had held before (Tyndaris, Segesta). Still others received punishment: Leontini, for instance, was razed and had all its territory seized as *ager publicus* (*ager Leontinus*). Similar treatment is found at Capua, which defected too (*ager Campanus*).³²⁵ Morgantina was exceptionally bitter in its resistance to Rome and after rebelling twice, the city was razed and its population forcibly displaced or sold into slavery.³²⁶ Rome resettled the urban centre with a band of Spanish mercenaries. These events are visible in the archaeological record as the stratigraphical layers belonging to ca. 200 B.C. show signs of severe destruction. Also the urban area shrunk significantly and the energetic building of the Hellenistic period (ca. 325-220 B.C.) stopped abruptly. Furthermore, existing structures lost their public function. At Syracuse, only land belonging to members of the pro-Carthaginian faction were seized by the state.³²⁷ There is no indication, even for the sanctioned cities, that these were not allowed to (still) govern themselves. This autonomy led to a resurgence of local currency, which Hiero had strived to ban.³²⁸ The construction of two *bouleuteria* at Iatas affirms this (ca. 150 and 130 B.C.).

Laevinus also sought to revitalize Sicilian agriculture as he:

‘compelled the Sicilians to lay down their arms at last and turn their attention to tilling the soil, so that the island might not only produce food enough for the inhabitants, but might relieve the grain market of the city of Rome and of Italy, as it had often done.’³²⁹

Due to this passage, Laevinus features in the survey report of Tyndaris, which saw an absolute boom in sites (37 to 75) after 200 B.C. The causal link is a tempting one, but not justified. Since this city was largely spared in the Second Punic War, I deem it unlikely that Laevinus felt compelled to effect any changes here and this remark reflects the tendency of overgeneralisation and letting literature guide archaeological analysis.³³⁰ However, at Lilybaeum the direct influence of Laevinus could be reflected in the proposed centuriation, for which 210 B.C. is the most likely date. Roman surveying was not necessarily economically motivated, but in this case literature and archaeology are in line. The most

³²⁴ Livy 26.40.15.

³²⁵ cf. Cicero, *Phil.* 2.39.101; 2.43; 2.101.

³²⁶ Livy 24.36.10; 26.21.14.

³²⁷ Livy 26.21.11; 26.21.17; 26.30.10; Scramuzza (1959) 235.

³²⁸ Walthall (2013) 192-196, esp. 194; see also for Syracuse: Livy 25.28.3; Cicero, *Verr.* 2.2.133; 2.2.137-139; *I.G.* XIV 256; 288; 366; 453.

³²⁹ Livy 26.40.15-16.

³³⁰ Fasolo (2011) 129, but see also Cambi (2003) 144; 154.

important act of Laevinus was extending the *Lex Hieronica* (tithe-taxation) from Syracuse to the entire island. Apparently Laevinus was very successful, as when he returned to Rome later that year he reported that:

‘there was not a Carthaginian in Sicily; that not a Sicilian was absent; that those who had been absent, banished by their fears, had all been brought back to their cities, to their lands, and were ploughing and sowing; that a deserted land was again under cultivation, productive at last for the farmers themselves, and for the Roman people in peace and in war a most dependable source of the grain supply.’³³¹

Livy related that Fabius Maximus continued Laevinus’ work the following year. Sicilian grain could be shipped to the legions stationed at Tarentum already in 209 B.C. Scipio, four years later, was also able to extract more than one tithe. However, in the following year (204) Scipio was still working on reimbursing property to displaced Sicilians.³³²

The most relevant part of Laevinus’ legacy, however, was his pacification of Sicily. This peaceful situation had already started in ca. 250-215 B.C., but now it was both more enduring and more secure. It would no more be broken up by intense wars and the Carthaginian naval threat was largely pacified – giving Sicilian (coastal) cities no more reason for discontent. Prag noted that the literary and epigraphic sources report only minimal Roman military presence between the Second Punic War and the Social War (91 B.C.).³³³ Twelve Sicilian cities provided a fleet themselves as *socii navales*, to protect the Sicilian coast (from pirates). The

IV.2. The Sicilian economy between literature and archaeology

IV.2a. The nature of agriculture

Three authors inform us on the nature of Sicilian agriculture during the Republic: Livy, Diodorus and Cicero. While it is true that Cicero wrote 30 years after the end of the second century, conclusions can be drawn on the second century upon careful consideration.

Livy does not concern himself with the production-side of the Sicilian economy, but rather with its interactions with the Roman state. In doing so, he indirectly portrays the province’s quick rehabilitation and agricultural prosperity. For instance in 205-204 B.C.,

³³¹ Livy 27.5.

³³² Livy 27.8.18-19; 29.1.14-18.

³³³ Prag (2007a) 71-75.

Scipio sent the supplies needed for the invasion of Africa from Sicily. Sometime later, he ‘thanked’ the province by sending war booty from Carthage. Similarly, in 198 B.C. Sicily furnished supplies for the legions engaged in Greece. Two years later, Sicilian communities voluntarily shipped grain to Rome for distribution out of respect for C. Flaminius (aedile in 196 B.C.). In 191-189 and 171, Rome extracted double tithes (see IV.4 for details) to supply legions engaged in the Seleucid and Third Macedonian Wars.³³⁴

Cicero, although writing ca. 130 years after Livy, provided a similar characterization based on cereal cultivation.³³⁵ He did provide more details, and denoted the four primary occupations: traders, shippers, (grain) cultivators and stockbreeders.³³⁶ Of these four, three are related to grain – as is the entire third book of the Verrines: *De Frumento*. Grain cultivation was ubiquitous on the island, as Cicero mentioned no less than 36 cities in connection to the grain tithe, including Tyndaris, Morgantina and Heraclea Minoa. Furthermore, Sicilian agriculture was portrayed as thriving, extensive and highly profitable before Verres utterly devastated it. Because Cicero needed this contrast to help his case, it is likely that he overstated said flourishing for the first century B.C. What can be deduced from the surveys is that after 100 B.C., growth in site numbers was very limited and the period was marked rather by stability. It is therefore more plausible that Cicero’s characterization pertains the second century B.C., in which site numbers increased more dramatically. Cicero’s protagonists were commercial farmers and elite landowners, as these wealthy men were Verres’ main targets. Examples are Polemarchus of Morgantina, a commercial farmer who owned 125 *iugera* (Cicero mentions 50³³⁷) and Nympho of Centuripe whose estates produced ca. 42.000 *modii* (per annum).³³⁸ This means he owned ca. 2625-3500 *iugera*.³³⁹ However, Cicero did point out that small farmers were still the largest category before 73 B.C.:

*‘qui singulis iugis arant, qui ab opere ipsi non recedunt,—quo in numero magnus ante te praetorem numerus ac magna multitudo Siculorum fuit’*³⁴⁰

I quote Cicero in Latin here, because there are two possible interpretations of the first part (my italics). The first is ‘they who cultivate small plots’, which would indicate peasant

³³⁴ Livy 29.1.14; 29.29.3; 29.35.1; 29.36.1; 32.27.2; 33.42.8; 36.2.12; 42.31.8.

³³⁵ cf. Verbrugge (1972) 538.

³³⁶ Cicero, *Verr.* 2.188: ‘Mercator an negotiator an arator an pecuarius.’

³³⁷ Due to the fallow-coefficient of 2,5. see II.4c.

³³⁸ Cicero, *Verr.* 2.3.54-56.

³³⁹ $42.000/30 = 1400*2,5 = 3500$; $42.000/40 = 1050*2,5 = 2625$ (cf. II.3c).

³⁴⁰ Cicero, *Verr.* 2.3.27.

agriculture – Scramuzza interprets this as 3-4 *iugera*.³⁴¹ However, the second option is ‘they who own but a single yoke of oxen’, as put forward by Erdkamp. As he rightly remarks, farmers who own oxen are not peasants but commercial farmers that owned at least 75 *iugera* (see II.4c).³⁴² This cannot have been the largest class, due to the limited amount of available arable which accompanied population increases. For half case-studies (Heraclea, Iatas, Tyndaris, Halaesa) the peak in site numbers occurred ca. 150 B.C. The preceding half-century of peace must have allowed agriculture to expand, and in turn the population to increase. Evidence for this is the high number of sites, but also the emergence of villages like Campanio (at Heraclea). At Segesta, there is a decrease in the site numbers (235 to 195), but the village-sites grew. At Halaesa, this is the first period that more marginal areas further from the city are settled. Peasant farms remained the dominant form of settlement everywhere, but the growth of villages at Segesta, also hints at an expanding poorer class that did not own the land they worked (wage labourers, tenants).³⁴³ This made living in villages more appealing as this increased the propensity for communal sharing and storing. If these factors are taken together, they indicate that availability of land decreased, which has often been taken as an indication of concentration of landholding into a few hands. At Segesta, however, large *villae* or *latifundium*-like sites remained absent, and commercial farms were still heavily outnumbered by peasant farmsteads (50 to 150 respectively). In fact, the only places where large estates appeared in the second century B.C. was at Lilybaeum and Morgantina. I will return to these Morgantine sites later, but those at Lilybaeum can be connected to reorganization of the territory. This must have allowed elite members to purchase large tracts of lands (on average 600 *iugera*), but it is unknown whether this land was *ager publicus*.³⁴⁴ The Romans would have encouraged the concentration of landholding, which served their interest by increasing Sicily’s total output through capital investment (oxen, slaves) and cereal monoculture. Hobson has shown for Africa under the Republic, based on the *Lex agraria* and the *Lex Rubria* (and the latter’s repeal), that accumulation of great estates was aided by centuriation.³⁴⁵ Similarly, at Heraclea, it was the larger sites (ca. 35x50m) which were regularly spaced but also similar in size. However, it is important to not just take Roman interests as determining factors in the Sicilian economy, as these were two are the only case-studies where there is any indication of their direct involvement.

³⁴¹ Scramuzza (1959) 323; see also Pritchard (1972) 660; Verbrugge (1972) 546.

³⁴² Erdkamp (2004) 19; Pliny *Nat.* 18.173 indicates at least 30 *iugera* was needed to profit from using oxen: 30*2,5 = 75 *iugera*.

³⁴³ Bernardini et al. (2000) 102.

³⁴⁴ cf. Scramuzza (1959) 327.

³⁴⁵ Hobson (2012) 48-53.

For both Livy and Cicero, the presentation of the Sicilian economy as a cereal monoculture stems from the nature of their works. Livy relates only (army) provisions, which consisted of wheat and barley and thus presents a Sicilian economy geared towards the provision of Rome's needs. Cicero singles out wheat cultivation as the prime industry and the one Verres' extorted most. In reality, Sicilian (peasant) agriculture was more polycultural, which is also made concrete by the *Tabula Halaesae* (II.2d) and the inscriptions from Tauromenium (II.3b).

While Cicero and Livy were in line, Diodorus presented a wholly different account of the Sicilian economy in his narrative of the First Servile War (135-131 B.C.). Chronologically, this account falls right between the other two. Diodorus wrote that in 60 years of peace the Sicilians accumulated wealth not through wheat cultivation but through expansive *latifundia* that specialized in animal husbandry. The Sicilians had purchased many slaves, the younger of which were made herdsmen and the older men were used for 'such services as they had occasion.'³⁴⁶ Damophilus, the man who triggered the First Servile War, is typical of Diodorus' Sicilian landowner. He owned many herds of cattle, besides being engaged in cereal cultivation. He treated his slaves very badly, especially the herdsmen, causing them to revolt.³⁴⁷ There were literary and ideological implications behind Diodorus' profile of the Sicilian countryside, rather than factual observations. For one it is not surprising that Diodorus claims herdsmen instigated the revolt, as their mere sight inspired terror. They were strong armed men, clad in animal skins and accompanied by huge dogs. Not in the least they were free to move around.³⁴⁸ Diodorus overstated the importance and extent of herding to make plausible his 'choice' of protagonists, as did Cicero with the large landowners. Moreover, Diodorus here drew mainly upon the account of Posidonius, who presented Sicily as a land dominated by herdsmen. Strabo, who used the same source, provides a similar picture.³⁴⁹ Diodorus himself, however, revealed incidently that there were still many small cultivators, who were spared by the slaves and occasionally aided them.³⁵⁰

I see three possibilities for Diodorus' account. The first is dismissing Diodorus' pastoral economy based on the stronger claims of Livy and Cicero, between whom exists continuity. Scramuzza does this, and postulates that there was a small increase in husbandry

³⁴⁶ Diodorus 34-35.2.

³⁴⁷ Diodorus 34-35.2; 34-35.34.

³⁴⁸ cf. Pritchard (1969) 548.

³⁴⁹ Strabo, 6.2.6; Verbrugghe (1975) esp. 189; Scramuzza 316-317.

³⁵⁰ Diodorus 34-35.2.2; 36.11; 36.3.5.

(10-15%, but this is a guess³⁵¹) but that the revolting slaves were generally not herdsmen but rather employed on grain-growing *latifundia*.³⁵² While Scramuzza's critique of Diodorus is on point, the (grain) *latifundia* he bases his point on are generally absent from the archaeological record. The second option is accepting all three accounts at face value, as done by Toynbee.³⁵³ This narrative unfolds as follows: during the Second Punic War, Laevinus promoted wheat agriculture. Then there was a shift towards livestock-based *latifundia*, but after the First Servile War the consul P. Rupilius introduced the *Lex Rupilia* (132-131 B.C.). Pritchard links this *Lex* to land reforms, similar to the Gracchan land reforms in Italy, whereas Cicero only related judicial stipulations.³⁵⁴ These land reforms were meant to prevent another slave revolt, and thus reinstated the small cultivators, said to be dominant again 60 years later by Cicero. Toynbee and also Pritchard base their argument on an inscription on a milestone found near Forum Popilli (Lucania).³⁵⁵ This inscription bears no name, but it is generally attributed to P. Popillius Laenas, as he constructed the road on which the milestone stood (*via Popillia*). He held the consulship together with Rupilius in 132 B.C. The inscription states:

‘I also as proprietor in Sicily sought out the runaways belonging to Italian men and delivered 917 persons. Again, I was the first to cause cattle-breeders to retire from public land in favour of cultivators.’³⁵⁶

This last sentence might refer to his activities in Sicily, but it probably pertained to Italy in relation to Tiberius Gracchus' policy. From this it was extrapolated that Rupilius was doing the same in Sicily – a policy continued by successive governors.³⁵⁷ This evidence is rather scanty, and the proposition unlikely. The land reforms in Italy served a military purpose: providing peasants with land so they could meet the census requirements and purchase equipment (cf. IV.4a) as well as resettling homeless veterans. I fail to see why Rome would have found this necessary for Sicily, which supplied only a marginal amount of soldiers. According to Cicero, Heraclea received new settlers from Rupilius in 132-131 B.C., which the archaeological site affirms. Wilson suggested that the second *bouleuterion* in Iatas also indicates new settlers in this period. But influxes of settlers do not imply land reforms, and there is no evidence that these were veterans, or that there were any veterans in Sicily before

³⁵¹ Verbrugge (1972) 554.

³⁵² Scramuzza (1959) 242-247.

³⁵³ Toynbee (1964) 210-227; 313-331.

³⁵⁴ Cicero, *Verr.* 2.2.32 is the only source on the *Lex Rupilia*, which was not a *Lex* in the traditional sense but did regulate legal dealings between Romans and Sicilians (only) in Sicily.

³⁵⁵ Pritchard (1969) 552-553.

³⁵⁶ *CIL* I.638.

³⁵⁷ Pritchard (1969) 552-553.

36 B.C.

I propose a third and preferable option. In II.3c, I pointed out a crop rotation based on cereal cultivation, pasturing and fallow. This way, expansion of grain farming and stockbreeding could occur simultaneously, especially when the population growth implied by the survey reports is taken into consideration. This can be identified at Segesta where population density was high and husbandry-related items were found already in 300-150 B.C. Furthermore, the only major occupation in Sicily in 73-70 B.C. mentioned by Cicero unrelated to grain was animal husbandry and he indicated that cultivators generally owned livestock too.³⁵⁸ Some mountainous and forested areas had always been devoted to pastoralism rather than crop cultivation. New well-suited areas were added to this by Rome, in the form of *ager publicus*. In Southern Italy during this period there was a similar shift to large estates devoted to stockbreeding on *ager publicus*.³⁵⁹ Unsurprisingly, the insurgents of the Second Servile War were strongest in mountainous Triocala and Macella, as well as Morgantine territory, which was *ager publicus*.³⁶⁰ During the Morgantina survey, Thompson noted that from 200 B.C. onwards there was a decline in sites, but larger sites remained occupied on the fringes of the territory (4-5km from the city). These sites, while not certainly large *villae*, could be the type of pastoral *latifundia* that Diodorus refers to. Their position close to the hills that surround the Morgantine plain further strengthen this hypothesis. What is striking is that some already appeared in the preceding period (400-200 B.C.), indicating that Diodorus' and Toynbee's proposed second-century shift might have been a more gradual development.³⁶¹ However, the fact a meat market (*macellum*) was the only public building constructed at Morgantina during the second century B.C. does confirm that animal husbandry intensified. Similarly, the village of Campanio, which was founded roughly two decades before the First Servile War, contained a large deposit of animal bones. Areas that were neither *ager publicus*, nor unsuited for crops would not see a transformation in the second century B.C. This is dictated by the archaeological record, which shows the lasting dominance of the small-medium family-farm, but also agricultural logic from a food-perspective. Animal husbandry might be more profitable than grain cultivation. But compared in terms of land required and the amount of food produced, grain cultivation was much more suited for peasant families. When peasants kept animals, it would be on a small scale as to allow crop rotation and famine protection (cf. II.3c). Also lands devoted to vines and orchards

³⁵⁸ Cicero, *Verr.* 2.188.

³⁵⁹ Roselaar (2010) 173-179.

³⁶⁰ Diodorus 36.4-8; Scramuzza (1959) 241.

³⁶¹ cf. De Angelis (2016) 236-238.

present a sizeable past material and temporal investment, and therefore would not be converted on a significant scale.

The large upsurge of public and private construction cities might seem incongruent with my dismissal of the presence of *latifundia*, that were central to the traditional narrative on Republican Sicily. This is because it was elites that utilized their private wealth through euergetism to equip the cities with monumental public buildings, and slave-staffed *latifundia* were generally perceived as their primary source of income. But as indicated in I.3c, the rich men behind public construction did not only derive their wealth from traditional *latifundia*, but also extracted rent from land that they owned and let to tenants. It is indeterminable but very probable that a proportion of the ubiquitous small farms were located on land held by absentee landlords. We know from Cicero that Sicilians also used contracts on the collection of the tithe to expand their wealth (see IV.3).

In the next section I will address the one matter that is left unresolved so far: how to reconcile the absence of large estates with the fact that Republican Sicily faced two massive slave insurgencies.

IV.2b. Slavery and the economy

Ancient Sicily is notorious for the extent of its slavery due to ancient accounts of the Servile Wars. This ‘slave mode of production’ has been doubted, mainly due to the Marxist theory that lay behind its conception.³⁶² I do not doubt that a large proportion of labour was provided by slaves, as the continuous large scale wars of the middle Republican period brought in slaves in massive numbers. To support my argument, I have listed literary references to enslavement of captives (300-146 B.C.)³⁶³ in the table below. Of the slaves captured outside of Sicily, only a proportion must have been brought in. The actual number of slaves was even higher, as there were other ways one could become enslaved.

³⁶² cf. Hobson (2012) 20.

³⁶³ After this period, the sources are much less clear on enslavements.

Location	Date (B.C.)	Number of captives	Sources
<i>First Punic War (total)</i>	264-241	107.000-133.000	Scheidel (2007) 8.
Agrigentum	262	25.000	Diodorus 23.9.1.
Hippana, Mytistratus, Enna, Camarina	258	Est. 12.500	Scramuzza (1959) 229; Polybius 1.24; Diodorus 23.9.
Africa	257	20.000	Polybius 1.29.7.
Panormus	252	13.000	Didorus, 23.18.5.
<i>Gallic and Ligurian conflicts</i>	300-192	250.000	Frank (1933) 188.
Gallic war	225-200	32.000	Scheidel (2007) 8.
<i>Second Punic War (total)</i>	218-201	172.000-186.000	Scheidel (2007) 8.
Melita	218	2.000	Livy 21.51.
Hirpini	215	5.000	Livy 23.37.
Hispania	213	4.000, and tribe of Turdetani	Livy 24.42.
Capua	211	Whole population	Livy 26.16; 26.34.
Aegina	210	Whole population	Polybius 22.7.9.
Tarentum	209	30.000	Plutarch, <i>Fab.</i> 22.4.
Africa	202	Several towns	Polybius 15.4.2
<i>Eastern Wars (total)</i>	201-168	303.000	Scheidel (2007) 8.
Epirus	167	150.000	Livy 45.34.
<i>Other conflicts</i>			
Sardinian revolt	177-175	80.000 (incl. casualties)	Livy 41.28.
Fall of Carthage	146	55.000-60.000	Appian, <i>Pun.</i> 126-130.

One source of slaves unrelated to war requires mention, due to its large scale. Cilician pirates came to dominate the Mediterranean after the decline of the major naval powers: Carthage, the Ptolemies and the Seleucids. Rome was initially not too bothered with fighting the pirates on a large scale, focussing only on the keeping the Tyrrhenian and the Adriatic safe. The pirates' primary business was slaving – the main bulk of which was sold to Romans. Strabo, no doubt exaggerating, relates that tens of thousands of slaves were sold on Delos to the Romans on a daily basis. The heyday of piracy was 155-66 B.C., after which Rome enlisted Pompeius Magnus to quickly and effectively dispose of them.³⁶⁴

Diodorus related that Sicilians were among the foremost purchasers of the slaves listed above.³⁶⁵ Sicilian presence on Delos is attested by four inscriptions left by Syracusans: Timon (193 B.C.), his son Nymphodorus (179 B.C.), Alypes (157-156 B.C.) and Sopratus (ca. 150 B.C.).³⁶⁶ There are some indications of the numbers of slaves actually working in Sicily.

³⁶⁴ Strabo 14.5.2; Plutarch, *Pomp.*

³⁶⁵ Diodorus 34-35.2.1; 34-35.32.

³⁶⁶ Hatzfeld (1912) 85; 142; 13; 79; 130.

For the First Servile War (135-132 B.C.) Diodorus claimed that when Rupilius encountered 200.000 revolting slaves, but Livy related only 70.000. For the Second Servile War (104-100 B.C.), Diodorus noted 42.000 insurgent slaves, but this was a more local revolt.³⁶⁷ What did this mean for the Sicilian economy? On the one hand, it seems that elite landowners relied more on tenancy than on slave labour. This explains the proliferation of small sites but the concurrent accumulation of wealth among elites that left its mark on the urban landscapes. On the other, the proposition of a ‘slave mode of production’ severely underestimates the extent of free labour. It was actually the class of middling commercial farmers that relied mostly on slave labour, rather than the elite. The elite literary sources praise a regular income over a variant but higher income, whereas the commercial class engaged in specialized production. Cato denoted 100-240 *iugera* as the ideal size for a farm.³⁶⁸ As such, it seems that Cato’s book is meant for commercial farmers rather than actual elite landholdings, which are generally classified as being over 500 *iugera*.³⁶⁹ Problematic is Cicero’s remark that the bulk of agricultural labour in Sicily was provided by landholders themselves.³⁷⁰ However, it remains unclear if Cicero meant here the owners of oxen (commercial farmers) or those who work small plots (peasants). In light of the prosperity of the second century B.C., it seems reasonable to assume that the more fortunate proportion of the peasantry could expand their holdings and even employ one or several slaves to assist in cultivation. This would prove necessary as a single man could only work approximately 8 *iugera*, as established in II.4c. The best evidence comes from Segesta, where ca. 50 commercial farms were built in 350-150 B.C., but no real *villae* emerged.³⁷¹ The chattel-gangs of slaves working massive fields are therefore anachronistic, but a proportionally large number of slaves was working in Sicily.

Another problem is presented by the nature of agriculture and its labour requirements, which vary greatly over the year. For rich men like Cato this was not a problem, but for the small farmer it might be, as slaves consumed parts of the harvest they produced. Therefore, slavery must not obscure the extent of seasonal rural wage labour.³⁷² Finally, the focus on agricultural slavery may also overshadow the extent of urban slavery. The large homes that existed in this period, found at Tyndaris, Lilybaeum, Iatas, would have surely been staffed with several domestic slaves. From Cicero we learn that slaves were also engaged in textile

³⁶⁷ Diodorus 34-35.2.18; 36.5; Livy, *Periochae* 56.

³⁶⁸ Cato, *Agr.* 10-11.

³⁶⁹ This is mainly based on the *Lex de modo agorum* in Livy 6.34.4; cf. Roselaar (2010) 183 n.129.

³⁷⁰ Cicero 2.3.27.

³⁷¹ Cambi (2003) 150-156.

³⁷² e.g. Cato, *Agr.* 144 on hiring labourers for the olive harvest.

manufacturing.³⁷³

I deliberately left the agricultural taxation of the *Lex Hieronica* out of consideration in this paragraph, as it requires a contextualization of the causes behind its adoption by the Romans. This will also provide insight into the effects that dominion over Sicily had on Roman politics. The context will be provided in the next paragraph.

IV.3. The politicization of food in the Republic

Three balances of power could be altered by political utilization of food. Firstly, it could alter the balance between states, which was achieved through good military logistics (IV.3b). Secondly, food could alter relations between elite individuals, through personal patronage and distributions aimed at increasing political prestige (IV.3c). The third balance was that between socio-political classes, in this case the senatorial elite and the *plebs urbana* (IV.3c). This last one is more abstract, as it is difficult to determine whether this was a deliberate agenda or just the sum of individual actions. The question hinges on the strength of an elite class-consciousness, but in the end the effects were the same. That is the depolitization of the citizen-soldier, especially after the institution of the grain dole. The discussion on the agro-political struggles of the late Republic is extensive, and has seen widely varying opinions. I will treat it concisely in the next section as it is key to understanding the sections that follow.

IV.3a. The struggle over Italian land

In his mammoth work *Hannibal's Legacy* (1965), Toynbee formulated at great length the traditional theory. He envisioned the Second Punic War as the cause of the demographic decline and deracination of the free peasantry in Italy, who consequently moved to the cities. After the Hannibalic War, the ravaged lands of central and southern Italy fell into the hands of the elite as *ager publicus*. The elite developed large estates and ranches, staffed by a massive number of slaves.³⁷⁴ In an equally mammoth work, *Italian Manpower* (1971), Brunt reacted to Toynbee, and dismissed the impact of the Second Punic War. Instead, he argued for a more gradual (but in the end equally dramatic) decline.³⁷⁵ The main evidence for the traditional view were passages by Appian and Plutarch.³⁷⁶ These passages prove anachronistic, as both

³⁷³ Cicero, *Verr.* 2.4.58-59; Scamuzza (1959) 289.

³⁷⁴ Toynbee (1965) vol 2, esp. 177-179; as summarized and evaluated by Cornell (1996) 100-104 and Walbank (1966).

³⁷⁵ Brunt (1971), esp. 142-143.

³⁷⁶ Appian, *B.C.* 1.7; Plutarch, *Tib.* 8.2-8.3.

Appian and Plutarch wrote centuries after the developments they described.³⁷⁷ Appian proposed a steady decline of the free peasantry, which served mainly as a pretext to his narrative of the Civil Wars. Exaggeration thus serves a literary purpose. Plutarch's main source was a political pamphlet by Gaius Gracchus, which also profited from overstating the dispossession of the citizenry.³⁷⁸ Increased literary criticism was not the only nail in the coffin of the traditional narrative, as a new hypothesis was derived from the use of archaeological surveys in central Italy. The new hypothesis was that there was not a decline of the rural (free) population but rather an increase. Morley pointed out that settlement patterns showed an increased amount of land under use. This overpopulation of the countryside led to a shortage in land, which in turn also led to proletarianization.³⁷⁹

Here a parallel can be seen between Republican Sicily and Central Italy, as for both the traditional (literary) narrative on their socio-economic development is refuted by survey archaeology. The use of more historically sensitive interpretative frameworks for economic history is another useful tool in nuancing the traditional view. Both Toynbee and Brunt argue from a perspective that prioritizes commercial considerations among elites and peasants alike. For instance, they presume that peasants lost their lands because they could not compete with influx of cheap provincial grain and that elites sought only slave labour for their estates as to maximize their income.³⁸⁰ I have drawn attention to the limited involvement of peasants in the market, and their focus on risk-minimization and self-sufficiency. Roselaar points out that peasants close to Rome would not simply sell their land in favour of cheaper land elsewhere, because of socio-political considerations. Living close to Rome allowed access to political assemblies and political leaders. This also explains the influx of proletarian citizens into Rome, rather than them resettling further away.³⁸¹ Similarly, Launaro argues that elite landowners in Central Italy in many cases profited more from letting their land to tenants rather than investing in slave-run *latifundia*. His argument is that tenants were *de facto* clients to equestrians and senators and could be employed in furthering their political careers. Tenant-clients could promote their patron's interests in the popular assemblies or in extreme cases join their private armies. Launaro's perspective is based on both the incorporation of surveys and the notion of the socio-politically embedded economy.³⁸² Rosenstein takes this

³⁷⁷ Smaller references to the greed of the rich and their monopolization of the land: Plautus, *Trin.* 287; Sallust, *Jug.* 41; Columella, *R.R.* 1.3.12.

³⁷⁸ Laurence (2012) 2-4.

³⁷⁹ Morley (2001) 50-51; 57; 61-62.

³⁸⁰ Roselaar (2010) 185-186 notes this.

³⁸¹ Roselaar (2010) 190-191.

³⁸² Launaro (2011).

even further when he asserts that the investments in land and agriculture by Roman senators were politically motivated rather than economically: landholding brought the socio-political prestige necessary for election into office, but industry, commerce and fiscal service brought in the majority of their income.³⁸³ A passage of Cicero seems to confirm this paradox among elites:

‘still that the occupation of cultivating land is maintained owing to the hopes and a certain sort of pleasure which it gives, rather than because of the profit and emolument arising from it.’³⁸⁴

Rosenstein bases this argument on his calculations of the profitability of Italian agriculture, which he proposes was low because the Italian cities were limited in their demands. Said demand for agricultural products is often overstated in this discussion.³⁸⁵ What I take from this is that it was not required for the elites to produce food on a large scale, but in doing so they consolidated their politico-economic control over urban food provisions. This strengthened their position in relation to the peasantry-citizenry, who were often head-to-head with the elite in the late Republican upheavals. Besides, being able to supply others with food must have entailed prestige in a society that glorifies self-sufficiency. Through patronage and euergetism the elite could distribute the food they accumulated among citizens in a non-market context.

It is in a similar vein that we must perceive Sicilian grain reaching Rome. Rosenstein takes the urban market of Italy as a whole, but I feel Rome constitutes a special case due to its sheer size and its political status as heart of the empire. Demand in the capital could hardly have been limited³⁸⁶, and politically motivated food distributions there would reap the best rewards. It is important, however, to note that ‘cheap provincial grain’ did not just replace Italian products reaching Rome; it was simply not sufficient for that (see below). The importance of Sicilian grain was that it provided a new and ample opportunity for the Roman elite to further their political interests through patronage and euergetism. Three considerations can support this claim. Firstly, Sicily’s proximity to Rome, and the fact that naval transport was much more effective than land-based transport. Importing from Sicily was therefore easier than from previously conquered agriculturally productive areas, like Apulia and the Po Valley. Secondly, Sicily’s capacity to produce large surpluses of grain. Finally, the annual

³⁸³ Rosenstein (2008) 20-21.

³⁸⁴ Cicero, *Verr.* 2.3.227.

³⁸⁵ Rosenstein (2008) esp. 8-10.

³⁸⁶ Garnsey (1988) esp. 198-203 for the frequency of food crises during the middle Republican period.

(involuntary) extraction of said surplus through the *Lex Hieronica*. But it is important to note that supplying the capital was no motivation for setting up a structural food supply. The initial purpose of this grain was to feed the legions, as will be shown in the following section.

IV.3b. Sicilian grain for Roman soldiers

In 210 B.C. the Roman state did not have any structural supply of food. Any mention of these before that time prove anachronistic. For instance, Livy mentioned the existence of a *praefectus annonae* in 440-439 B.C., although the office was created only in late Republican times.³⁸⁷ Erdkamp notes that ‘in the 50 years between 220-170 B.C. Roman government’s direct control of food had grown from virtually none to having abundant structural supply’.³⁸⁸ The First Punic War was the first Roman war where legions spent extended periods abroad. Soldiers foraged in Sicily and were supplied from the Roman heartland, which did not present a major problem as Central Italy was not invaded.³⁸⁹ In emergencies, the legions were provisioned by Hiero, who supplied large amounts of corn in 262 (siege of Agrigentum) and 250 (siege of Lilybaeum).³⁹⁰

This changed in the Second Punic War, in which the Romans were continually hard-pressed for supplies. Not only because they had fielded more legions than ever before, but also because they lost large tracts of agricultural hinterland to Hannibal’s invasion. Especially the loss of Campania for 5 years after the defection of Capua, had proven detrimental.³⁹¹ Similarly, after much of Sicily had defected to Carthage it seems unlikely that the commercial influx of grain continued. Rome had recuperated somewhat by 211-210 B.C., not in small part through (re-)conquest of Sicily. At this point, four key factors converged to open the eyes of the Senate to the need of establishing a state food provision. The first factor was of course the large deprivations Rome had faced in the Second Punic War. The second was that the Second Punic War had shown what could be achieved with a large semi-professional army, but also that it could not march on an empty stomach.³⁹² The third factor was that Rome at this point had a large fertile hinterland that it directly controlled. This includes not only Sicily, but also large tracts of Italian land: most importantly the *ager Campanus* that had become *ager publicus*. The fourth factor was that Hiero had shown Rome the benefits of systematic extraction of agricultural surplus. He had provided Rome again during the 220s B.C. (Gallic

³⁸⁷ Erdkamp (2000) 55-56.

³⁸⁸ Erdkamp (2000) 62.

³⁸⁹ Polybius 1.17.9; 1.39.8; 1.52.5; Garnsey (1988) 183-184.

³⁹⁰ Diodorus 24.1.4; Polybius 1.18.11.

³⁹¹ Livy 28.45.

³⁹² Garnsey (1988) 274.

War), for which Rome paid him later. Hiero gave grain for free to aid Rome in 218 (Battle of Messana), twice in 216 (Trasimene) and again in 215 (against Philip V). Of extra importance is 237, in which Hiero appeared in Rome in person with 200.000 *modii* of wheat, to safeguard his kingdom after he had supported Carthage in the Mercenary War.³⁹³ In 210 B.C., Rome adopted Hiero's title for the entirety of Sicily and named it after him: *Lex Hieronica*. The formative nature of Sicily on Roman exploitation becomes apparent here, because in the same year Rome started levying a similar tithe on the *ager Campanus* and Sardinia. From 146 B.C. onwards *Africa Proconsularis* would also be subjected to tithe. Rome reaped the benefits a year after institution of the *Lex*, as troops at Tarentum could be provisioned from Catana (Sicily) already in 209 B.C.³⁹⁴

The increased scale of warfare between 220 and 170 B.C. necessitated to set up supply systems on a huge scale from the start. Polybius stated a soldier's ration to amount to 4 *modii* of wheat monthly. The 17-19 legions (including allies and cavalry) active between 218-201 B.C. required ca. 8.558.400-11.504.160 *modii* of wheat and 5.868.000-7.011.000 *modii* of barley (for horses, excluding pack animals) per annum. The total rations of the legions (including cavalry & allies) averaged around 7.837,920 *modii* of wheat and 4.295.400 *modii* of barley annually between 200 and 170 B.C.³⁹⁵ Rome had successfully incorporated her first province into her war machine. It appears from the enormous figures that military provisioning was the main reason for moving grain across the Mediterranean at this time.³⁹⁶

IV.3c. Sicilian grain for Roman citizens

State redistribution-based food provisions for the city of Rome grew initially as a spin-off of military logistics, coupled with elite competition.³⁹⁷ The enormous amounts required by the legions simply did not leave much to spare. Cicero mentioned that the total Sicilian tithe brought in 3 million *modii* in 73 B.C.³⁹⁸, which must have been lower ca. 200 B.C. in light of the agricultural growth attested by the survey reports. Sardinia would have provided ca. 1 million *modii*. Only after 146 B.C. would this supply truly exceed army demands, as *Africa Proconsularis* brought in ca. 8 million *modii* annually.³⁹⁹ The turn of the second century saw a brief reduction in warfare, which rendered military stocks redundant and prompted magistrates to ship it to Rome to be distributed. Here the lines between private and public

³⁹³ Garnsey (1988) 183-184.

³⁹⁴ Livy 27.8.19.

³⁹⁵ Rathbone (2014) 191 also based his numbers on Polybius, I calculated the averages.

³⁹⁶ cf. Frank et al. (1933) 158-160.

³⁹⁷ Erdkamp (2000) 63.

³⁹⁸ Cicero, *Verr.* 2.3.163.

³⁹⁹ Livy 43.6.11-13; Garnsey (1988) 182.

politics became blurry: these men sent grain in their capacity as generals and magistrates, but these distributions served a more personal purpose. In 203 B.C. a large quantity of corn was sent from Spain (pacified in 205). In 201-200 B.C., Scipio Africanus shipped corn from Africa and in 196 B.C. the Sicilian cities also sent corn. Livy wrote that grain was very cheap in the capital in this short period, due to free distributions of state grain for which there was temporarily no military need. The notion that state redistribution quickly replaced market exchange in the provisioning of the capital is false⁴⁰⁰, as Livy notes that (in 202 B.C): ‘supplies from Sicily and Sardinia made provisions so cheap that traders left the corn for the sailors in return for its freight.’⁴⁰¹

Sicilian grain had now acquired two possible destinations that could further the political careers of senators. In wartime, it would feed the legions whom they commanded and whom could bring them military prestige through victories and conquests. In more peaceful periods, they could employ it in semi-official acts of euergetism to garner support among the capital’s citizens. The historical record becomes lacking after 167⁴⁰², but I presume the semi-official acts of elite euergetism continued and gradually increased in scale. Rome’s demand grew, if its population grew from 180.000 to 375.000 (270-130 B.C.) and their diets consisted for 75% of grain, from 4-5 million *modii* to 9-11 million.⁴⁰³ These figures become more revealing when compared with the figures for agricultural productivity: one *iugerum* in Sicily produced an average net harvest of 30 *modii* (II.4b). A detailed explication of the functioning of Roman agricultural taxation follows in the next paragraph.

IV.4. The *Lex Hieronica*

The *Lex Hieronica* was the mechanism through which Rome extracted Sicilian produce. The only source is Cicero, who wrote some 140 years after institution of the *Lex*, but made an effort to stress continuity with the time of Hiero. For this period, we cannot use the numbers Cicero provided but qualitative analysis will prove prolific. The most suitable starting point here is clarifying how the tithe was collected.

IV.4a. Collection

Rome collected a tenth of the Sicilian harvest of wheat, barley, wine, olive oil and *fruges minutae* (probably legumes⁴⁰⁴). As is characteristic of Republican government, Roman

⁴⁰⁰ e.g. Toynbee (1964) 217; Erdkamp (2000) 62-63 on this tendency and more examples.

⁴⁰¹ Livy 30.26.5-6; 30.38.5; 31.4.6; 31.50.1; 33.42.8.

⁴⁰² i.e. Livy.

⁴⁰³ Garnsey (1988) 191.

⁴⁰⁴ cf. Garnsey (1998) 222.

administration did not directly extract the tithe. Instead, contracts for collecting the tithe were sold annually at Syracuse to tax farmers (*decumani* or *publicani*). These contracts were sold for the tithe per city (of which there were ca. 65) and per type of produce. Other taxes levied on Sicily were the *scriptura* (pasture tax on *ager publicus*) and *portora* (customs dues). Tax farmers were motivated by profit: they bid on the collection of contracts by offering an advance of the amount (in kind) they would collect to the Roman state. The *decumanus* that got the contract generally made a 10% profit on his investment. The Roman state benefited here, as it was the responsibility of the *decumanus* to arrange transport of the produce to the collection point at certain harbors like Catania and Tyndaris. The tax-farmers were generally Sicilians, but Roman equestrians could bid on contracts too. However, the auctions were held at Syracuse, whereas auctions for tithes of other provinces were held at Rome, so Sicilians had an advantage. Sicilian cities could also purchase their own tithes. Roman publican societies (knights' corporations) were forbid to hold contracts, but they had the exclusive right of collection of the *scriptura* and *portora*.⁴⁰⁵

Tithe collection was strictly regulated. Andreau noted that an unusually high amount of documents was involved. City officials drew up yearly lists of all cultivators, land under crop, seed planted etc. These lists were reviewed by the *decumanus*, who toured the territories for which he had purchased contracts at the start of the agricultural year (September and October). Then contracts were drawn up between each cultivator and the *decumanus*, which were kept in triplicate: one with the farmer, one with the *decumanus* and one in the local city archive. This is what allowed Cicero to study the many documents drawn upon in the Verrines. Heavy penalties were imposed on those who tried to cheat the system: cultivators who gave too little had to retribute the amount fourfold and tax farmers who did the same eightfold.⁴⁰⁶ Cicero related that farmers were well protected against having to let go of more than 10% of their harvest, but this argument seems mostly rhetorical or only pertaining to the Hieronian period.⁴⁰⁷ Already in 191-189 B.C. (Roman-Seleucid War) Rome levied double tithes on Sicily and Sardinia, which she did again in 171 (Third Macedonian War). In the time of Verres (73-71), double tithes seem to have become standard, and on top of the 6.000.000 *modii* acquired, 800.000 more was extracted. Second tithes were not just extractions, but rather forced sales: Rome paid 3 HS/*modius* for the second tithe and 3.5 HS/*modius* for the

⁴⁰⁵ Cicero, *Verr.* 2.3.14; 2.3.18-20; 2.3.74-77; 2.3.149; Scramuzza (1959) 238; 257; 268.

⁴⁰⁶ Cicero, *Verr.* 2.3.102; 2.3.112; 2.3.120; 2.3.36; Andreau (2007) 82.

⁴⁰⁷ Cicero, *Verr.* 2.3.20; 2.3.70; 2.3.117; 2.3.147.

extra 800.000.⁴⁰⁸ The effects the tithe had on the Sicilian economy are the subject of the next two sections.

IV.4b. Effects on agriculture

It is quite difficult to assess the effect that the tithe had on the economy. Walthall attempted this for the Hieronian period, based on Morgantina. Through the external methodology of NIE, he concluded that Hiero's tithe stimulated agriculture and market integration as infrastructural mechanisms employed by the tithe administration could be used also for market exchange and long-distance trade. Here, however, he does not concern the economic aims of the peasantry who dominated the Morgantine countryside. I do deem Walthall's conclusions applicable to the commercial class, but the extent of this class should not be overstated. Other economically contributing factors described in the survey report are also left unconsidered, like the new patterns of landholding (with more small landowners) introduced at Morgantina under Timoleon and continued throughout the reign of Hiero.⁴⁰⁹ Moreover, the findings at Morgantina may not be representative for other parts of Sicily. Fortunately, there is more scope for comparison in the Republican period. Cicero relates that every city had its own treaty with Rome, which fell into one of four categories:⁴¹⁰

Treaty	Requirements	Cities
<i>Civitates foederatae</i>	Military	Tauromenium, Messana, Netum
<i>Civitates immunes ac liberae</i>	Military	Centuripe, Segesta, Halaesa, Halicyae, Panormus
<i>Civitates decumanae</i>	Tithe	Iatas, Lilybaeum, Tyndaris, Heraclea Minoa, ca. 50 other cities
<i>Civitates censoriae</i>	Tithe and rents (territory taken as <i>ager publicus</i>)	Morgantina, Leontini, Ergetium, Hybla, Macella, Agrigentum, Henna?, Syracuse?

Varying degrees of rural expansion marked my eight case-studies, except Morgantina. This allows for a comparison of agricultural expansion, to see whether there is a causal relationship between tithe extraction or exemption and site numbers. Five cities saw a dramatic increase, namely: Heraclea Minoa (6 to 11 sites and a new village), Lilybaeum (14 to 24 sites), Centuripe (11 to 17) and Halaesa (24 to 43 sites). Tyndaris belongs here too (31 to 34-75 sites), but the true extent remains unknown due to imprecise dating of many sites and the absence of literary sources that offer more insight. Of these, two out of five were exempt from the tithe. Segesta (235 to 195 but with population increase) and Iatas (28 to 35 sites) were marked

⁴⁰⁸ Livy 36.2.12; 37.2.12; 37.50.9; 42.31.8; Cicero, *Verr.*

⁴⁰⁹ Thomson (1999) 416.

⁴¹⁰ Cicero, *Verr.* 2.3.12-2.3.15; Livy 26.40.14; 26.21.10-17; Prag (2014) 168; Scramuzza (1959) 332.

by modest rural growth. Interestingly, agriculture remained relatively stable in extent but both cities see a boom in urban public construction which signifies accumulation of wealth. Could the tithe therefore encourage a concentration of landholding among elites and commercial farmers? There is no evidence for Iatas, but there is for Segesta. This remains problematic, as Segesta was actually exempt from the tithe while Iatas was subject to it. In light of this, it seems most likely that the tithe only actively boosted the income of wealthy men of Iatas and Segesta who acted as *decumani*. Lastly, the territory of Morgantina showed severe signs of rural contraction and population decrease (40-72%). This is not surprising, as having to pay both tithe and rents to Rome would be detrimental to peasant farmers. A large portion had been deported at the start of this period anyway. Conditions there were not appealing for small farmers to purchase land there, but they were to commercial farmers and ranchers as large tracts became available. A similar picture emerges from Cicero's description of the territory of Leontini, also *ager publicus*. The average holding there in 73 B.C. would be ca. 2236 *iugera* – actual *latifundia*.⁴¹¹

In light of the above, a causal relationship between either subjection to or exemption from the tithe proves problematic. For instance at Lilybaeum and Heraclea it appears that the tithe infrastructure promoted agricultural growth, but in Lilybaeum this was due to the land reorganization. At Heraclea, Wilson cautiously postulated a similar reorganization, as four synchronous sites were very similar in size and laid out on a north-south axis with regular spacing between them. Furthermore, it seems that the growth in sites at Heraclea stemmed from an exodus of the urban hilltop centre: the city declined from ca. 250 B.C. onwards, but rural settlement increased and new villages were founded. If the tithe stimulated economic growth, we would see this reflected in the urban archaeology – as attested at Segesta and Iatas. Generally speaking, the fact that the population increased in this period indicates that Roman administration did not extract enough food surplus to 'impose' a Malthusian ceiling on Sicily. The tithe did not appear to impact the peasantry negatively, nor did it seem to stimulate their production as I judge more favourable settlement options more important. The climate was exceptionally favourable between 200 and 100 B.C., which constitutes another contributing factor. The tithe infrastructure would also not necessarily stimulate the commercial farmers to sell more, as they already sold and exported a large part of their produce from the interwar period onwards. The best evidence for an economy stimulated by safety rather than by the tithe comes from Tyndaris, where settlement dissipated further than

⁴¹¹ Pritchard (1969) 554, although the calculations are problematic, see V.2.

just the previously occupied strategic areas which led to a large increase in sites in the Republican period. This case demonstrates too that the tithe put no constraints on the expansion of peasant-based agriculture, at least during the second century B.C. The tithe did not just affect agriculture, but also commerce and transportation.

IV.4c. Trade and shipping

Walthall's hypothesis on increased grain trade operating besides the tithe proved problematic for the Roman period. Perkins offers a more viable alternative, based on the large proportion of Italian *amphora* sherds found at Iatas. This is a 'piggyback-trade' that grew during the interwar period, when market integration was highest and continued in tandem with the tithe administration. Perkins points out that the shippers who transported tithe produce to the Sicilian ports or to Rome on behalf of the *decumani* or the Republic would not have returned with an empty cargo hold. I concur, as these shippers belonged to the commercial class and would seek to maximize their profit on their ventures. The shippers would have loaded up on Italy's main export: (Campanian) wine.⁴¹² They would load off at Sicilian coastal cities where the tithe grain was shipped from. The fact that Italian wine *amphora* sherds were found at Iatas means that those employed in transporting produce from the inland to the coasts also brought imported goods back with them. What we see is thus that shippers, whose business was in service of state distribution took on a temporary role as merchants but peddling different goods. Here, market and non-market exchange thus operated separately, but within the same context. A large proportion of the sherds found at Iatas originated in Italy, but this was not the case everywhere. Only 10-20% of the second and first century pottery from Heraclea was imported from Italy, indicating that cities on the south coast remained probably more reliant on earlier established routes with North Africa.

I assume that the *Lex Hieronica* was detrimental to the food trade as less produce was available to be sold on the market. In a sense, Rome harnessed or took control of the flow of food that had already reached Rome and its legions before 210 B.C. (cf. III.3b). This food was removed from the mechanisms of the market and used to political ends by Roman senators, both as magistrates and as individuals. However, because eight cities were exempt from the tithe, commercial activity must have concentrated at these.⁴¹³ The farmers of these cities would have 10-20% more surplus to sell, which makes a substantial difference as surplus margins were generally low. Halaesa was a prime example, as it is located on the coast and

⁴¹² Perkins (2007) 43-44; cf. Tchernia (1983).

⁴¹³ Scramuzza (1959) 263.

flourishes in the second century B.C. Cicero attested therefore that Halaesa was the chief naval exporter of grain, and its prosperity made it a prime target for Verres' extortions.⁴¹⁴

IV.5. Conclusion

Most cities achieve a high degree of prosperity in the second century B.C. The survey reports on Heraclea, Iatas, Tyndaris and Halaesa indicate that 150 B.C. marked the zenith in site numbers. After the Second Punic War, no war-related threats impeded agricultural expansion. Even more so than in the previous period, settlement dissipated over wider areas and the population grew. Agriculture remained by and large dominated by peasant farming, but local differences are telling. Land reorganizations aided concentration of landholding as inferred from the appearance of larger sites at three case-studies. At tithe-exempt cities, the landscape was exceptionally densely settled, which reflects a flourishing and unconstrained peasantry. I infer that Roman taxation was not detrimental: enough agricultural surplus remained in Sicily otherwise population growth would not have been this extensive.

The analysis of this chapter in particular was aided by balancing literature and archaeology. Diodorus presented Sicilian agriculture dominated by *latifundia*-based pastoralism at the time of the Servile Wars. This was so at Morgantina but nowhere else. It is likely that animal husbandry expanded during the second century, but complementary to grain cultivation rather than as a replacement. Although the traditional 'slave mode of production' is to be dismissed on archaeological grounds, it may be concluded that slaves played an increasing role in the Sicilian economy of the second century.

A substantivist perspective, especially one based on food, proved useful in demonstrating the workings of the Republican political economy. After imposition of the tithe, the Roman state could have sold grain on the market to boost its income greatly. Instead, Rome put it to political use: mainly to fuel her war machine. In (rare) periods of peace, the senatorial elite could distribute state grain among the growing *plebs urbana* at Rome. In doing so they gained *dignitas* by harbouring the capital's populace from the fluctuating market. These acts of euergetism show the blurred lines between public and private politics, as magistrates could increase their personal political support. Due to the risk-minimalizing strategies of the peasantry, the tithe must have been detrimental to the grain trade. A piggy-back trade did grow, as the shippers contracted by the Republic return with an empty cargo hold. As such, large amounts of Italian wine flowed into Sicily.

⁴¹⁴ Cicero, *Verr.* 2.2.75.

Chapter V. Intensifying ties (100-44 B.C.)

As dictated by my method, a detailed political context will be set out before economic analysis is attempted (V.1). This contextualisation should be viewed as a continuation of IV.3, and shows how food became even more central to late Republican politics. This had its effects on the Sicilian economy, where the amount of harvest surplus extracted gradually rose. The effects will be analysed through qualitative and quantitative assessments of the Verrines combined with the archaeological record (V.2). Due to the intensifying ties that can be observed in this period, an appraisal is necessary of direct Roman involvement in the Sicilian economy (V.3). I decided to end my period of investigation in 44 B.C., when Caesar granted Latin rights to all Sicilians, which was the first step in ending Sicily's provincial status.⁴¹⁵ It was also after 44 B.C. that the Sicilian economy would become increasingly disrupted, as Sicily was drawn into the late Republican civil wars by Sextus Pompeius.

V.1. Sicilian grain between private and public politics

'In the decades preceding Gracchus' grain law, Roman magistrates deliberately acquired corn to take care of the city's needs, either to alleviate the effects of dearth or simply buy popularity.'⁴¹⁶

An inscription from Thessaly of ca. 150 B.C. confirms this for the aedile Caecilius Metellus, who purchased grain there to alleviate dearth in Rome.⁴¹⁷ In 122 B.C., Gaius Gracchus instituted the *Lex Sempronia Frumentaria*, which obliged the state to distribute 5 *modii* of state grain monthly to male citizens at a cheap rate of 6,33 as per *modius*.⁴¹⁸ 5 *modii* per month suffices to feed two adults. The distributions have often been viewed as either poor relief or a ploy for popularity, but utilizing a food perspective I come to different conclusions. This *Lex* served a dual purpose. Firstly, to safeguard the massive population of Rome against the fluctuating prices of the market – a motive stemming from the precariousness of food. The second purpose ties in with the first: to depoliticize the food provision, and remove it from the realm of 'competitive' euergetism. In doing so, Gracchus was hated by many among the elite, as he had, ironically, won the competition for popular support exactly by using the food

⁴¹⁵ Cicero, *Att.* 14.12.

⁴¹⁶ Erdkamp (2000) 70.

⁴¹⁷ Garnsey, Gallant & Rathbone (1984).

⁴¹⁸ 2,5 HS = 1 as: 1 *modii* was sold for ca. 0,5 HS; cf. Rome purchased second tithe grain for 3 HS/*modius*.

supply. It is debatable whether or not this was Gracchus' intention as the prime source, Plutarch, conveyed more lofty motivations.⁴¹⁹ The fact that it was not a person's wealth (economic status) that made him eligible for the dole but rather his socio-political status as citizen, reveals the effects of the *Lex*. It depoliticized the *plebs urbana* in their traditional role as (self-sufficient) citizens-farmers-soldiers individually, but gave them a new and collective political role as the supporters and clients of senatorial politicians who promoted their interests. This is what Juvenal meant when he famously stated that the citizenry no longer care for an active role in politics, but 'anxiously hopes for just two things: bread and circuses!'⁴²⁰ If Gracchus' aim was to depoliticize the food supply, he failed, as it became central to late Republican politics. Besides, senators could still make monetary distributions or hand out privately acquired grain. Large semi-official individual distributions still occurred as well, for instance by Cicero as *quaestor* of Sicily (75-73 B.C.):

'At a time of great dearth, I had sent an immense quantity of corn to Rome. I had been affable to the traders, just to the merchants, liberal to the citizens of the municipal towns, moderate as regards the allies.'⁴²¹

The precariousness of food is crucial here, as senators and politicians sought to capitalize on it. During the first century B.C., Rome was hit by food crises one out of four years on average.⁴²² Demagogues like Apuleius Saturninus in 100 B.C. and M. Livius in 91 B.C. tried to push laws that made state grain very cheap (0,83 as per *modius*), but these were never passed.⁴²³ Sulla, in 82 B.C., did away altogether with these distributions through a *Lex Cornelia*. According to Sallust, Lepidus used this as an argument in his speech to rouse the citizenry against the dictator. Sallust made it evident that the citizenry now regarded subsidised grain as their political right in his description of the Roman populace rioting in demand of food in 75 B.C.⁴²⁴ The *popularis* party grew dramatically in power, and the Senate was left no choice but to reinstate the dole in 73 B.C. through the *Lex Terentia Cassia*, a renewal of the *Lex Sempronia*. In 58 B.C., the *Lex Clodia* made the distributions completely free. According to Cicero, this cost the state a fifth of its revenue.⁴²⁵ Upon his rise to power,

⁴¹⁹ cf. Garnsey (1988) 196; Plutarch, *Cai. Grac.* esp. 1.4-1.5.

⁴²⁰ Juvenal, *Sat.* 10.81.

⁴²¹ Cicero, *Planc.* 26.64.

⁴²² Garnsey (1988) 198-203.

⁴²³ Livy, *Per.* 69; 71;

⁴²⁴ Sallust, *Hist.* 1.7-11; 2.42.

⁴²⁵ Cicero, *Sext.* 25.

Caesar reduced the number of recipients, which had risen to ca. 320.000, back to 150.000.⁴²⁶

It may seem like improper financial management for the state to provide sustenance to its citizens at such expense, but the assumption that states seek to maximize their income and minimize their spending is a modern one. It is incongruent with the peculiar political structure of Roman Republican government. For most senators at any given time, dispensing of state funds collectively (i.e. as the Senate) was not a problem, as they would only get to personally utilize said funds in case they were elected to a magistracy. Still, one could only access the state treasury when holding offices higher on the *cursus honorum*, and it is conceivable that many junior senators would never attain the rank of praetor. Especially if one considers that it was generally a select small group that ‘monopolized’ senior offices during the late Republic. This may elucidate the proliferation of tax-farming too, which did little to maximize state income, but did take responsibility for tax collection away from the Senate.

In 58 B.C., the centrality of food became apparent once more. A time of constant food shortages at Rome (now at 600.000-800.000 inhabitants⁴²⁷) prompted the Senate to appoint Pompeius Magnus as *praefectus annonae* for 5 years. He extracted vast quantities of grain from Sicily, Sardinia and Africa. Appian relates that this immensely boosted his prestige, and Cassius Dio claims this appointment made him ‘hold sway over the entire world then under Roman power’.⁴²⁸ However, in 49, during Caesar’s Civil War, Pompeius Magnus blockaded Ostia to prevent provincial grain reaching his opponents but in doing so effectively starving Rome.⁴²⁹ This goes to show that the capital and Sicily were now locked in an economic dynamic from which Rome could not escape, as this would entail a massive starvation that the *plebs urbana* would not tolerate. The effect that the increased demands of the capital had on Sicily will be discussed in the next paragraph.

V.2. A strained province?

As noted in I.1b, Republican Sicily has often been represented as oppressed by Rome and economically declining. In the previous chapter, this was proven wrong for the second century B.C. For the first century, the Verrines present even more opportunity for analysis, as they were written around 70 B.C. The next section will assess the reliability of the Verrines and the one following will compare Cicero’s economy with the archaeological record.

⁴²⁶ Suetonius, *Caes.* 41.3.

⁴²⁷ Garnsey (1988) 212-213.

⁴²⁸ Plutarch, *Pomp.* 49-50; Appian, *B.C.* 2.18; Cassius Dio 39.9.

⁴²⁹ Cicero, *Att.* 7.9.2; 9.9.4.

V.2a. The Verrines: qualitative analysis and critical assessment

My purpose here is to determine whether or not the Verrines are an accurate source on the Sicilian economy in the first century B.C. I confine myself to the relevant part of the orations, which is *De Frumento*. This book deals with Verres' crimes concerning the grain tithe. As governor, he struck deals with the *decumani*, some of whom were actually his henchmen, and in doing so he extracted too much grain and coin – leaving Sicilian agriculture and cities devastated. The victims were small and middling farmers, but mainly the richest strata of landowners from whom Verres had the most to gain.

The first and foremost argument why the Verrines are not a realistic source is that only one out of six books were actually delivered in court. Verres and his attorney Hortensius admitted defeat after the first *actio*: the five books of the second *actio* were presumably published by Cicero to publicize his oratory skill. In *De Frumento*, Cicero provided exact economic figures like the number of cultivators at various cities and amounts of wheat taken as tithe. But the purpose behind these figures was not to be exact, but to quantify Verres' outrages.⁴³⁰ Moreover, *De Frumento* is ideologically loaded, which could lead to further distortion of the figures presented. Cicero, as a Roman senator⁴³¹ and intellectual, knows the importance of food and of securing a regular supply. He sought to demonstrate that Verres is the worst kind of criminal, because he disrupted agriculture in Sicily for his own gain and that of his friends. The ulterior accusation in the Verrines is not that Verres ruined the Sicilian economy but that in doing so he jeopardized the Roman food supply.⁴³² Cicero draws upon this same precariousness of food in his *De Domo sua*. He stressed the danger of Rome not receiving the provincial food supplies when these were sold elsewhere or hoarded for profit.⁴³³ This set the stage for his arguments against Clodius, whom he accuses of devising a law that would make him excessively mighty as it would place him in charge of all Roman corn. This 'insane frenzy was threatening the fortune and property of every man.'⁴³⁴ Finally, it appears that *De Frumento* is very clear in its presentation of the data, but this is false. Steel points out that the structure and some formulations are actually meant to confuse the audience. For example, Cicero uses different measures (*medimnus*, *modius*) at random. Through creative use of language, Cicero also made Verres' actions appear highly illegal and immoral, but in reality they could have remained within legal practice as part of heavy but

⁴³⁰ Verbrugghe (1972) 558.

⁴³¹ Cicero became a senator after his quaestorship in Sicily (75-73 B.C.).

⁴³² Cicero, *Verr.* 2.2.3-2.2.5;

⁴³³ Cicero, *Dom.* 11; Erdkamp (2004) 209.

⁴³⁴ Cicero, *Dom.* 25.

transparent taxation. For instance, Halaesa was ordered to sell 60.000 *modii* of wheat to Rome.⁴³⁵ Upon delivery, Verres rejected it as sub-standard and demanded cash from the citizens, equivalent to the price of 60.000 *modii*. With this money, he purchased grain elsewhere and pocketed what was left of the money provided to him by the Roman state (for the initial purchase), which was normal and accepted practice for governors. Cicero formulates: ‘a praetor, who ought to be buying grain, does not buy it but sells it, and takes away and carries off all the money which he ought to be handing out to the states.’⁴³⁶ He thus makes it seem like Verres pocketed all the money from both Halaesa and Rome.⁴³⁷

Arguments in favour of the Verrines’ reliability also exist. Most relevant is that Cicero had access to all of the tithe-related documents, which were kept with extraordinary meticulousness (cf. IV.4a). Cicero had been to Sicily on many occasions and held office there (75-73 B.C.). If he had access to said documents, other senators – who made up the jury – would have had this as well, especially those who had been involved with the grain supply as aediles. This would present a real problem if Cicero chose to misrepresent the data. Pritchard points out that as a *novus homo*, the risks would be even greater.⁴³⁸ The second argument is more complex. Verres was the first governor to operate under the *Lex Terentia Cassia*, when Rome and the army had grown dramatically since the *Lex Sempronia*. This could have structurally increased the grain dole, necessitating the structural extraction of two tithes and 800.000 extra *modii*. Cicero mentions that:

‘It was Verres's duty according to a decree of the senate, and according to the law of Terentius and to the law of Cassius about corn, to purchase corn in Sicily.’⁴³⁹

It appears extractions of more than 20% of the harvest had become the norm. If Rome extracted more than the tithe, it was in the form of involuntary sales. Farmers were paid 3 HS/*modius* on the second tithe and 3.5 HS/*modius* on the extra 800.000 *modii*. Scramuzza argues that these prices were favourable, as prices would have been much lower than that directly after harvest.⁴⁴⁰ However, Erdkamp points out that Cicero presented 3 HS/*modius* to

⁴³⁵ I presume this grain was the tithe on those who farmed in Halaesa but were not citizens there, and were therefore not exempt.

⁴³⁶ Cicero, *Verr.* 2.3.170-2.3.171.

⁴³⁷ Steel (2007) 38-48; cf. Andreau (2007); for confusing use of measures see e.g. Cicero, *Verr.* 2.3.106.

⁴³⁸ Pritchard (1969) 545.

⁴³⁹ Cicero, *Verr.* 2.3.163.

⁴⁴⁰ Scramuzza (1959) 267-268.

be the average annual market prices.⁴⁴¹ Still, these sales presented problems for farmers. They now had cash, but food was more scarce on the island and so its price rose. This problem would only increase throughout the agricultural year, as food stocks were consumed and prices rose further. Erdkamp established that market integration (i.e. price standardization) in antiquity was poor, which limited the market's capacity to replace the food taken by Rome. Furthermore, Sicily was traditionally not an importer of food and imported food would be more expensive than that cultivated by farmers themselves due to transport costs. Cicero presented these problems for Sicilian farmers as Verres' fault, who simply acted under new law. Cicero could extrapolate from here and exaggerate other abuses, or rhetorically 'transform' the heavy taxation into illegal extortions. Cicero's benefit would be double: he could boost his career but also criticise the grain dole to which he was opposed.⁴⁴²

A final consideration on *De Frumento* is relevant for AE-studies. Twice does Cicero apologize for the 'tedium' of the (grain) figures he presents. In this sense, the speech is an expression of Cicero's self-confidence: he can even make the grain provision appealing.⁴⁴³ These remarks could indicate a lack of elite interest in numerical economics, but I feel they rather demonstrate a taboo on publicly discussing these matters.⁴⁴⁴

V.2b. The Verrines: quantitative analysis and archaeological comparison

Concerning land use, Cicero provided the following figures for the three years of Verres' governorship:

Territory	Cultivators in 73 B.C.	Cultivators in 71 B.C.	Difference
Leontini	84	32	51 (61%)
Mutyca	188	101	87 (46%)
Herbita	257	120	137 (53%)
Agyrium	250	80	170 (68%)
<i>Total</i>	<i>779</i>	<i>333</i>	<i>446 (avg. 57%)</i>

Cicero used these figures to indicate a general depopulation of the countryside and decline of agriculture.⁴⁴⁵ Modern historians like Pritchard and Scramuzza, however, used the figures to calculate the average size of holdings therefore conclude a concentration of landholding (latifundisation). To this end they also employ Cicero's figures on arable land and the tithe of

⁴⁴¹ Erdkamp (2004) 150; Cicero, *Verr.* 2.3.214-2.3.215; for discussion see Pritchard (1972) 651-653.

⁴⁴² cf. Cicero, *Tusc.* 3.20.

⁴⁴³ Cicero, *Verr.* 2.3.10; 2.3.103; Steel (2007) 38-40.

⁴⁴⁴ Wiedeman (2003) demonstrates that quantification in itself was not an issue.

⁴⁴⁵ Cicero, *Verr.* 2.3.120-121.

Leontini.⁴⁴⁶ This is pointless, however, as the total extent of the territories of these cities is unknown and that of Leontini proves doubtful (see below).⁴⁴⁷ Besides, the *ager Leontinus* was not representative: as *civitas censoriae* landholding there would be much more concentrated than at the average *civitas decumanae*, as shown by comparison of the Morgantina survey with that of Iatas or Tyndaris.

In light of the archaeological record, both depopulation and concentration of landholding do occur, but are both quite limited in their extent. Of the eight territories of chapter II, only two show definite signs of depopulation: Segesta and Morgantina. I have already explained this development for the latter, but for the former this quick desertion remains puzzling – even to the authors of the survey report, as Segesta was exempt from the tithe and had flourished for centuries.⁴⁴⁸ Diodorus did relate that the Second Servile War originated here, but also that the slaves were ordered ‘to refrain from spoiling the country, or destroying the cattle and crops’.⁴⁴⁹ Strabo mentioned, in the first century A.D., that a new town had grown on the coast near Segesta (*Aegestes*, *Aquae Segestanae* or *Segestanorum Emporium*). This could explain the decline of the hilltop city (akin to Heraclea).⁴⁵⁰ At Morgantina, there were 15 very small sites and 7 very large ones, and at Segesta the large sites (commercial farms and villages) were the only ones that had not disappeared by the early imperial period. Depopulation and growth of large estates went hand in hand in these cases, as peasant agriculture required more labour for the same area due to its fragmented and unspecialized nature. Interestingly, both the poorest (rural labourers and slaves) and richest (large landowners) social strata grew at the expense of the peasantry.

Iatas, Heraclea, Lilybaeum, Centuripe and Tyndaris were marked by stability in site numbers. Again, for some the situation is undetailed due to problems related to dating. At all of these cities small peasant farms remained (most) common but there is a locally variant tendency towards concentration of landholding into larger estates. At Lilybaeum this concentration is greatest, as in the survey *villae* were the most common type of sites, followed by large farms and then small farms (resp. 9, 8 and 7). At Heraclea, one more site appears but rural contraction must have begun later in the first century B.C. as in the early imperial age only two sites remained – which develop into *villae*. Campanaio proves more revealing for the first century, as here ca. 50 B.C. smaller buildings are replaced by a large L-shaped building,

⁴⁴⁶ Cicero, *Verr.* 2.3.116; Pritchard (1969) 554-555; Scramuzza (1959) 255-260.

⁴⁴⁷ see Verbrugge (1972) 558.

⁴⁴⁸ cf. Cicero, *Verr.* 2.2.166.

⁴⁴⁹ Diodorus 36.5.

⁴⁵⁰ Strabo 6.2.1.

probably a large farmstead. At Tyndaris, Fasolo has denoted three sites that certainly were *villae*, which were constructed in the first century B.C.

Lastly, Halaesa is the only region that revealed a significant increase in site numbers. However, Burgio failed to specify when this growth occurred – therefore I distributed it evenly across the centuries. I deem this unproblematic for the previous two centuries, as in at ca. 300 B.C. there were only 3 sites but in the Republican period there were 68. It might be that before the first century the zenith in site numbers had already been reached. Still, in light of this enormous increase I deem it unlikely that this number was reached before 100 B.C. At Halaesa taxation imposed no limit on the expansion of peasant-based agriculture. The same could be said for Centuripe, but here there is indication that all favourable territory was already occupied by 100 B.C. Cicero remarked that the Centuripians owned or rented land in every district of Sicily, and were in possession of the majority of the territory of Aetna, one of the most fertile districts. It appears that some Centuripians had become wealthy in their tax-exempt hometown, but expansion of landholding proved impossible in Centuripe's densely occupied territory. Therefore, they purchased land elsewhere from which to derive income but also socio-political prestige as absentee landowners – preferably in the districts of highest agricultural renown. According to Cicero, in the entire *ager Leontinus*, only one farm was owned by a Leontine citizen (Mnasistratus) and the rest by other citizens. For these men, the rent and tithe in these districts was not an issue, contrary to the peasants and small farmers who had been driven from *ager consorviae* by a combination of rising taxes and rents. Diocles, a citizen of Panormus, rented land at Segesta, which provides literary affirmation for the growth of estates in Segesta's territory.⁴⁵¹ Most likely is that the peasant population relocated to coastal Aegestes, and the land they left behind was bought up by wealthy farmers from other districts – similar to Morgantina's case. Being no Segestan citizens, these new landowners were not exempt from the tithe but did not have to pay rent or *scriptura* as in Leontini, Aetna and Morgantina.

Very little urban archaeological evidence remains for the first century. Therefore it is impossible to determine the state of Sicilian euergetism at this time, but utilizing an argument from silence it appears to have diminished greatly when compared to the second century. Morgantina and Heraclea showed continued decline and were abandoned during the first century A.D. Drastic decline set in at three other cities too in the early imperial period. The only public construction of this period was located at Tyndaris, where the theatre was

⁴⁵¹ Cicero, *Verr.* 2.3.93; 2.3.108-109.

restructured around 100 B.C.

Cicero also provided figures for the total wheat tithe extracted at several territories, cited in the table below. I judge these more reliable than the figures for cultivators listed above. This is because any (ex-)aedile present during the trial would have immediately recognized if Cicero presented fraudulent figures here, as these were the amounts directly taken by the Roman state. The truthfulness therefore hinges on whether or not Cicero changed *De Frumento* before publishing it. Still, numbers on ancient agricultural production are very rare and these present a unique opportunity. Before attempting assessment of total production, it should be noted that the tithe contracts represent actually less than 10% of the total harvest, as tax farmers offered amounts for the contracts that allowed them to turn a profit. The profit margins of *decumani* in the Verrines are too high as part of Cicero's argument, therefore I take a profit of 10% on a tax-farmer's investment as standard.⁴⁵² This percentage is based on plausibility provided by Scramuzza, but unfortunately nowhere attested in the sources.⁴⁵³ Calculations of the average size of holdings prove untenable but a calculation of the total amount of land under wheat can be attempted, based on the average yield figure of 35 *modii/iugerum* (seed/yield ratio of 7). An estimate of wheat land can be reached by employing the 2,5 fallow-coefficient (cf. II.3). The numbers given are not perfect, but provide the best possible indication of Sicilian wheat cultivation in the first century B.C.

Region	Tithe (<i>modii</i>)	Est. total production (<i>modii</i>)	Est. land under wheat (<i>iugera</i>)	Est. total wheat land (<i>iugera</i>)	Reference: <i>De Frumento</i>
Acesta	5.000	55.000	1.571	3927	83
Lipara	3.600*	39.600	1.131	2828	84-85
Amestratus	4.800*	52.800	1.509	3773	88-89
Petra	18.000*	198.000	5.657	14.142	90
Thermae	8.000	88.000	2.514	6285	99
Enna	19.200*	211.200	6.034	15.085	100
Aetna	300.000	3.300.000	94.285	235.712	104-108
Leontini	226.000	2.486.000	71.028**	177.570**	109-117
<i>Total</i>	3.000.000	33.000.000	942.857	2.357.142	163

⁴⁵² cf. Walthall (2013) 123.

⁴⁵³ Scramuzza (1959) 257-259.

* Converted from *medimnoi* to *modii* at 6:1.

** Cicero (*Verr.* 2.3.112-116) states that at Leontini only 30.000 *iugera* was under wheat, but this is incongruent with his claim that the seed/yield ratio there was 1:8-10. At a sowing rate of 5 *modii/iugerum* and a tithe of 226.000, this would mean that still 49.720-62.150 *iugera* was under wheat.

A final calculation is in order:

$$1 \text{ iugerum} = 2523 \text{ m}^2 * 396,35 = 1.000.000 \text{ m}^2 = 1 \text{ km}^2.$$

Modern surface area of Sicily = 25.711 km².

$$2.357.142 * 396,35 = 934.261.593 \text{ m}^2 / 1.000.000 = 934 \text{ km}^2.$$

$$934 / 25.711 * 100 = 3,63\%.$$

Thus, 3,63% of Sicilian land was devoted to wheat but this excludes parts of the 8 tithe-exempt territories. Scramuzza proceeds to conjecture about the size of these territories and add this to the equation, but I do not see value in this.⁴⁵⁴ Cicero made it seem like large tracts of Sicilian territory were occupied by outsiders, although this varied locally in the case of tithe-exempt cities. At Segesta it appears much of the land was held by outsiders, whereas at Halaesa and Centuripe this appears minimal. But if the figure of 60.000 *modii* of wheat from tax-exempt Halaesa mentioned above represents the tithe levied there on foreigners, it seems that a substantial proportion of the total harvest of tithe-exempt districts was also calculated into Cicero's total tithe figure of 3.000.000 *modii*, and that therefore a total percentage of Sicilian land devoted to wheat of ca. 4-5% is satisfactory. This shows that Sicily was still not densely populated on average, especially relative to Italy in the same period.⁴⁵⁵

Through synthesis of archaeology and literature it appears that in the first century, Roman taxation intensified and was generally heavy. However, as Walthall rightly remarks, the tithe-system was not oppressive relative to other forms of ancient taxation. His remarks pertain to Hiero's time, when the 10%-limit was adhered, but this was different in Roman times. One element does remain relevant: this taxation was a percentage rather than a fixed amount of the harvest.⁴⁵⁶ This certainly would have helped farmers make it through years of poor harvests, as the state then effectively shared the burden. On the other hand, in years when the harvest was abundant the state would share too and remove a large surplus. Besides, the *Lex Terrentia Cassia* (73 B.C.) probably standardized a double tithe and more, although farmers were recompensed. This way, it appears from the surveys that an artificial check on demographic growth was imposed in the first century. I rejected this for the previous century. Only at tithe-exempt Halaesa were there significant indications of population growth during

⁴⁵⁴ Scramuzza (1959) 259-261.

⁴⁵⁵ cf. Rosenstein (2008).

⁴⁵⁶ Walthall (2013) 167-168.

this period. However, the pessimistic view of a severe decline in population, as put forward by ancient and modern authors alike, proves untenable. This would only follow in the early imperial period, to which very few sites were dated at Segesta, Morgantina and even Halaesa and when urban decline became widespread. While it is beyond the scope of this dissertation, I would link this true decline to the Civil Wars and Augustan reorganization (ca.22-21 B.C.), when the *Lex Hieronica* was replaced by fixed-amount taxation.⁴⁵⁷ The indirect influence (taxation) of Romans on the Sicilian economy has now been sufficiently considered, which leaves only the direct involvement unclear. The following section is aimed at elucidating this.

V.3. Romans and Italians in Sicily

No Roman or Latin colonies were founded in Sicily before Augustus, and it is difficult to assess the number of Italians who emigrated to Sicily before Verres. In the first century, the sources become more clear – this is why this subject is treated here, rather than in previous chapters.

The literature is contradictory on the role ascribed to Romans and Italians in the Sicilian economy. According to Livy, Italians migrated to Sicily at an early date to capitalize on the chaotic aftermath of the Second Punic War, and claim lands unjustly at Syracuse. Scipio expelled them and returned the land to its former owners.⁴⁵⁸ He might have resettled the Italians at Halaesa, where an honorary inscription dedicated to him by *Italicei* was found, dated to the year of Scipio's praetorship (193 B.C.).⁴⁵⁹ Diodorus' account of the Servile Wars indicates a strong Italian-Roman presence before 135 B.C., but again ideological distortion renders his account anachronistic. His aim was to demonstrate that it were the equestrians who 'corrupted' the Sicilian landowners and prompted them to mistreat their slaves. Diodorus adopted this anti-equestrian sentiment from his source Posidonius. Diodorus therefore portrays Roman and Italian knights as controlling large tracts of Sicilian land for cattle-raising. Paradoxical, however, is that all the protagonists in his account of the Servile Wars were Sicilians.⁴⁶⁰ For the Second Servile War, Diodorus only names one Roman equestrian: P. Clonius. He possessed some eighty slaves and lived in the territory of Heraclea.⁴⁶¹ Strabo is in accordance with Diodorus here:

⁴⁵⁷ Lintott (1993) 123.

⁴⁵⁸ Livy 29.1.

⁴⁵⁹ *C.I.L.* I.612.

⁴⁶⁰ Diodorus 34-35, esp. 2.31-32; Sacks (1990) 143-144; 211-212; Baronowski (2011) 57.

⁴⁶¹ Diodorus 36.4.1; Pritchard (1969) 550.

‘The Romans, therefore, taking notice that the country was deserted, took possession of the mountains and most of the plains and then gave them over to horseherds, cowherds, and shepherds; and by these herdsmen the island was many times put in great danger’,⁴⁶²

More concrete evidence comes in the form of the *Lex Rupilia* (132-131 B.C.), as presented by Cicero in the *Verrines*. It details conditions for the determination of legal procedures between Roman and Sicilian citizens.⁴⁶³ The fact that Rupilius deemed it necessary to provide such a law means that there were at least some Roman citizens living in Sicily at this time. Scholars often presume that most Italians and Romans in Sicily were traders or *negotiatores* from the start⁴⁶⁴, but besides the unrealistic writings of Diodorus, *In Verrem* is the only evidence.⁴⁶⁵

In the *Verrines*, approximately 180 people are mentioned by name and 42 of these were Roman citizens.⁴⁶⁶ Besides these, communities of Roman citizens are mentioned at Agrigentum, Lilybaeum, Panormus and Syracuse.⁴⁶⁷ From analysis of names alone, one arrives at a figure of 23% of the Sicilian population being Roman but this cannot have been true. The high figure stems from the fact that the entire fifth book deals with Verres’ offences against Roman citizens. Moreover, Cicero could have overstated Roman presence in Sicily to stress its ‘suburban’,⁴⁶⁸ (rather than provincial) status: The motive behind this was to increase the manner in which the jury identified with Sicily, with the familiar ulterior motive of demonizing Verres. The following passage proves key:

‘Was this the state to which it was decent to reduce that suburban and loyal province of Sicily, full of most valued allies, and of most honourable Roman citizens, which has at all times received with the greatest willingness all Roman citizens within its territories’,⁴⁶⁹

Most of the Romans mentioned by Cicero were indeed merchants, many of them equestrians. They logically reside in port cities and in some cases were numerous enough to form citizen bodies, as made possible by the *Lex Rupilia*.⁴⁷⁰ Of more interest is the case of C. Pompeius

⁴⁶² Strabo 6.2.6.

⁴⁶³ Cicero, *Verr.* 2.2.32.

⁴⁶⁴ e.g. Scramuzza (1959) 293 on Halaesa.

⁴⁶⁵ esp. Cicero, *Verr.* 2.5.158.

⁴⁶⁶ Verbrugge (1972) 543.

⁴⁶⁷ Cicero, *Verr.* 2.4.67; 2.4.93; 2.5.10; 2.5.16; 2.5.94.

⁴⁶⁸ Marino (2006) 8-10 for discussion on Sicily’s *suburbanitas*.

⁴⁶⁹ Cicero, *Verr.* 2.5.159.

⁴⁷⁰ e.g. Cicero, *Verr.* 2.4.37; 2.5.140; 2.5.161; 2.5.168.

Philo: a Roman citizen but also a Sicilian and citizen of Tyndaris.⁴⁷¹ This shows that some cities had more close ties to Rome than others – especially those on the Tyrrhenean coast. Archaeology can shed some light on Romans who settled in the cities: at both Lilybaeum and Tyndaris luxurious residences were found that revealed Italic inspiration. This does not necessarily indicate that it was Romans or Italians who owned them but could also reveal cultural contact between resident Italians and local elites who emulated their architecture. A similar conclusion is most logical for the Italic style temple that was constructed on the *agora* of Iatas in the first century B.C.⁴⁷² Landholding by Romans was more rare. When Cicero enumerated the landholders whose slaves were accused of planning a revolt, five were Sicilians and only one was a Roman knight: C. Matrinius. Two other Roman farmers featured, probably regular citizens: Q. Septicius and Q. Lollius.⁴⁷³ Roman senatorial holdings were also mentioned: Anneius Brocchus rented an estate (probably at Segesta) and was liable to tithe payment. Another, C. Cassius Longinus, was married to a woman who had inherited lands at Leontini.⁴⁷⁴ It seems senators took an interest, although not a widespread one, in acquiring Sicilian land to procure the grain for furthering their political career. Holding provincial land was forbidden to senators by the *Plebiscitum Claudianum* of 218 B.C., but must have become accepted again – otherwise Cicero would not mention these holdings to a jury of senatorial peers. Quite the opposite: Steel argues that it is specifically this senatorial group-identity that Cicero sought to exploit with these arguments.⁴⁷⁵ Thus, ca. 70 B.C. there was not much Sicilian land in the hands of the Roman elite. Senators were traditionally forbidden and could probably gain more prestige from acquiring estates in Italy. More equestrians were present, but their interests lay with publican activities and commerce. The Roman presence was increasing, however, during the late Republic and especially during the early Empire. In 44 B.C., Cicero wrote of G. Canius, a Roman equestrian who traveled to Syracuse to procure a little ‘vacation estate’ to invite friends and enjoy himself. Cicero does not specify whether this was an agricultural estate, but I infer it was as Matrinius ‘bought all the equipment too’.⁴⁷⁶ Increased Roman elite presence in Sicily can only be derived from the sources after my period of investigation. It follows that during the Republic, Romans did not play a large direct role in the Sicilian economy, although they did indirectly through state taxation and administration.

⁴⁷¹ Cicero, *Verr.* 2.4.48.

⁴⁷² Wilson (2000a) 148.

⁴⁷³ Cicero, *Verr.* 2.3.14; 2.3.29; 2.3.36; 2.3.61; 2.5.10-16; Verbrugge (1972) 543.

⁴⁷⁴ Cicero, *Verr.* 2.3.93; 2.3.97.

⁴⁷⁵ cf. Cicero, *Verr.* 2.5.45; 2.3.93-2.3.98; Steel (2007) 42-43.

⁴⁷⁶ Cicero, *Off.* 3.58-3.60.

V.4. Conclusion

The first century B.C. was marked by absence of the growth and prosperity of the previous periods, but the severe economic downturn inherent to the traditional narrative proved exaggerated. At Segesta and Morgantina there were clear signs of rural depopulation, which led to increased concentration of landholding to the detriment of the peasantry. Halaesa's territory was the only one that saw an increase in site numbers. The five other regions showed stability of site numbers and a varying degree to which concentration of landholding occurred. The absence of population growth in the first century indicates that Roman taxation grew heavier. The best literary evidence here is the *Lex Terentia Cassia*, which can also provide insight into the reality of the economic downturn instigated by Verres.

This characterization ties in with Cicero's version of the Sicilian economy. However, he greatly overstates rural depopulation: he postulated that on average of 57% of all farmers abandoned their farms between 73 and 71 B.C. Only the contraction of site numbers at Segesta and Morgantina do approach this rate. But even in these two regions, decline occurs in a manner of centuries rather than years or decades. Modern scholars have interpreted this depopulation as latifundisation, but the surveys prove this extent overstated.

It is in light of the differing economic strategies of the elite and the commercial classes that the intricacies of the tithe administration can be elucidated. Even though an increasingly larger part of the Sicilian harvest was removed from market exchange, this still provided income for the commercial class (in the guise of *decumani* and shippers). Concerning the grain trade itself, however, the tithe had now risen to levels were it surely minimized the amount Sicilian farmers could put to market, even in the case of those with larger holdings. The enormous amount of food that flowed out of Sicily and into Rome proved instrumental in the politically turbulent first century B.C. *Optimates* and *Populares* alike used *leges frumentarii* to either garner popularity among the *plebs urbana* or depoliticize them. In this period several protagonists like Pompeius Magnus, but also Caesar, Marius, Crassus and Sextus Pompeius display a new degree of personal control over the food supply through legitimate or military means. This tendency towards monopolization would culminate under Augustus, who effectively became the sole *euergetes* that provided state grain to the citizens of Rome.⁴⁷⁷

⁴⁷⁷ Due to my focus on Sicily, I have only denoted Pompeius in this chapter; **Caesar**: Cicero, *Att.* 9.9.4; Appian, *B.C.* 2.48; **Marius**: Appian, *B.C.* 1.67-70; **Crassus**: Plutarch, *Cras.* 12.2; **Sextus Pompeius**: Cassius Dio 48.18.1; 48.31; Appian, *B.C.* 5.67-68 ; **Augustus**: *R.G.* 5; 15; 18.

Conclusion

I started this dissertation with the research question: what were the socio-economic developments in Sicily under the dominion of the Roman Republic, and in turn how did Sicily impact the Republic? This question originated in interrelated historical, methodological and historiographical considerations. I will treat these here in the same order as the conclusions of chapters III-V.

1. The Sicilian economy and the Republic

Three distinct phases can be discerned for Republican Sicily's socio-economic history. During the first phase (241-210 B.C.) only western Sicily was under direct Roman control. The west was marked by a stability in site numbers, which contrasts with the preceding period which saw rural expansion. Also eastern Sicily saw an increase in site numbers between 260 and 210. This does not indicate heavy Roman taxation, as this taxation was relatively light and the grain trade was allowed to flourish. It was a matter of security: eastern Sicily was faced with much less devastation during the First Punic War than the west, where fighting continued much longer. This, and the continuing Carthaginian threat deterred farmers from living closer to their fields, which was possible in the east.

During the long second century (210-100 B.C.) most cities achieved their zenith in site numbers, indicating that agricultural production could expand over even wider areas than before. This led to population growth. At most cities, small scale peasant agriculture remained the dominant mode of production but landholding became more concentrated to a locally varying degree. At Morgantina, Lilybaeum and possibly Heraclea land reorganizations facilitated more substantial concentration of landholding and formation of estates. The increased wealth of the richer socio-economic strata was utilized for monumental construction in the cities. Rome instituted the Lex Hieronica on the entire island, but this seemed to impose no substantial limit on agricultural expansion – nor did it seem to stimulate it.

During the short first century B.C. (100-44 B.C.) Rome's extraction of Sicilian agricultural surplus grew more intense. This proved detrimental to Sicily, as I could not discern no more indication for population growth, except possibly at tax-exempt Halaesa and Centuripe. It is in this period that most villae start appearing, as the elite was less affected by Roman taxation. At Segesta and Morgantina there was a certain and drastic depopulation of the countryside, which went hand in hand with the growth of latifundia.

2. The balance of literature and archaeology

I sought a balance in the use of evidence mainly to refute and nuance the traditional narrative on Republican Sicily, which relied almost exclusively on literary sources of Livy, Diodorus and Cicero. The two primary problems inherent in these sources were overgeneralisation and a pessimistic perspective: Republican Sicily was presented as a region stuck in economic downturn due to direct and indirect Roman exploitation (respectively: landholding and taxation). Survey reports were particularly useful in refuting both problems.

Diodorus' account of widespread latifundisation based on pastoralism proved highly exaggerated although it contained some truth for areas like Morgantina that were mountainous or *ager publicus*. At no other territories were widespread *latifundia* attested and a shift away from crop cultivation was unlikely. A proportional growth of animal husbandry can be discerned as this would boost agricultural production without requiring more arable. The archaeological evidence confirms this, especially at Campanaio (Heraclea). This was in part responsible for the population growth observed the second century B.C.

Cicero's Verrines painted a picture of widespread desolation of the countryside: on average 57% of farmers would have left their farms in the three years of Verres' governorship (73-71 B.C.). This rate of abandonment was only approached at the two cities that faced rural abandonment in the first century: Segesta and Morgantina. But this was due to either earlier events or the population moving towards a nearby coastal site. Still, the typical rural development in the first century was stability in site numbers, rather than increases, indicating that Rome now siphoned off a large part of the surplus structurally. This makes it plausible that Verres was simply the first governor operating under the *Lex Terentia Cassia* (73 B.C.) which provisioned for a high extraction rate of the total harvest. If 6.800.000 *modii* became standard, this meant 20,6% of the total harvest but this excludes the *decumanus*' share. The economic detrimental effects ascribed to Verres, at least those in *De Frumento*, might simply reflect how the renewed dole required the state to acquire massive quantities of food annually.

3. The utility of substantivist analysis for ancient economies

The aim I had with this thesis was utilizing a substantivist perspective, as this provides the most historically sensitive insight. The three key principles of my interpretative framework are food history, re-integrating non-market exchange and the consideration of diversified economic outlooks and strategies.

It because of the precariousness of food that self-sufficiency and food provision

acquired ideological dimensions. These preceded Rome's conquest of Sicily, but grew more crucial over the course of the mid-late Republic. The Second Punic War had opened the eyes of the Senate to the need of a structural food supply due to the deprivations, the large semi-professional army, the accumulation of territory and not in the least Hiero's grain diplomacy. The Republic's first means of acquiring such supplies was the *Lex Hieronica* and the food procured through this mechanism initially served a strictly military purpose. In the rare peaceful periods, magistrates and generals could ship the grain to Rome for distribution among the fast-growing citizenry (*plebs urbana*). These semi-official acts of euergetism temporarily shielded the citizenry from the fluctuations of the market and as such brought the political *dignitas* and popular support required for being elected into office. As such, from 210 B.C. the Sicilian economy was utilized towards political ends by the senatorial elite of the Republic, both individually or as a collective (the Senate). The *Lex Sempronia Frumentaria* (122 B.C.) represents the start of a new phase, as in the following decades (until 58 B.C.) grain laws became method to put the economy into service of politics to an unprecedented degree. Studying these developments from a food perspective and keeping an eye on this context proved beneficial in elucidating how and why the economic dynamics operating between Sicily and Rome grew during the Republic.

The general absence of large estates in the second century B.C. at first seems puzzling as the Sicilian elite displayed great wealth, which was used to embellish the cities with public monumental buildings through euergetism. Considering the elite's preference for a regular income over a maximized income, it follows that they must have owned a proportion of the land that was occupied by peasant farmsteads to collect rent and acquire income that way. Seemingly equally incongruent is the absence of *latifundia* and the fact that a large proportion of labour in Sicily was supplied by slaves. As the commercial class was the only socio-economic group that sought to structurally maximize their income, I deem it most likely that it was them who employed the majority of agricultural slaves on commercial farms that were found during the surveys. It is important that the distinction between the commercial class and the peasantry should not become blurred, as the peasantry employed a risk-minimizing agricultural strategy (mainly polyculture) that is very different from profit-maximizing methods of cultivation. Walthall did allow these lines to become blurred, which opened the door to overgeneralization: representing all ancient farmers as having a commercial economic outlook and an inherent desire for proto-capitalism and market participation if transaction costs were lowered enough. This is why Walthall denoted the tithe administration and infrastructure to be act as economic stimuli, but when considering more informed peasant

strategies it follows the *Lex Hieronica* could only have been detrimental to the grain trade. This trade, which flourished during the interwar period, must have deteriorated after the universal adoption of the tithe. But a new type grew: a piggy-back trade that unified the political economic goals of the elite with the desire for profit of the commercial class. In this context, market-exchange and state redistribution operated in tandem, although with different types of wares.

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Appendix

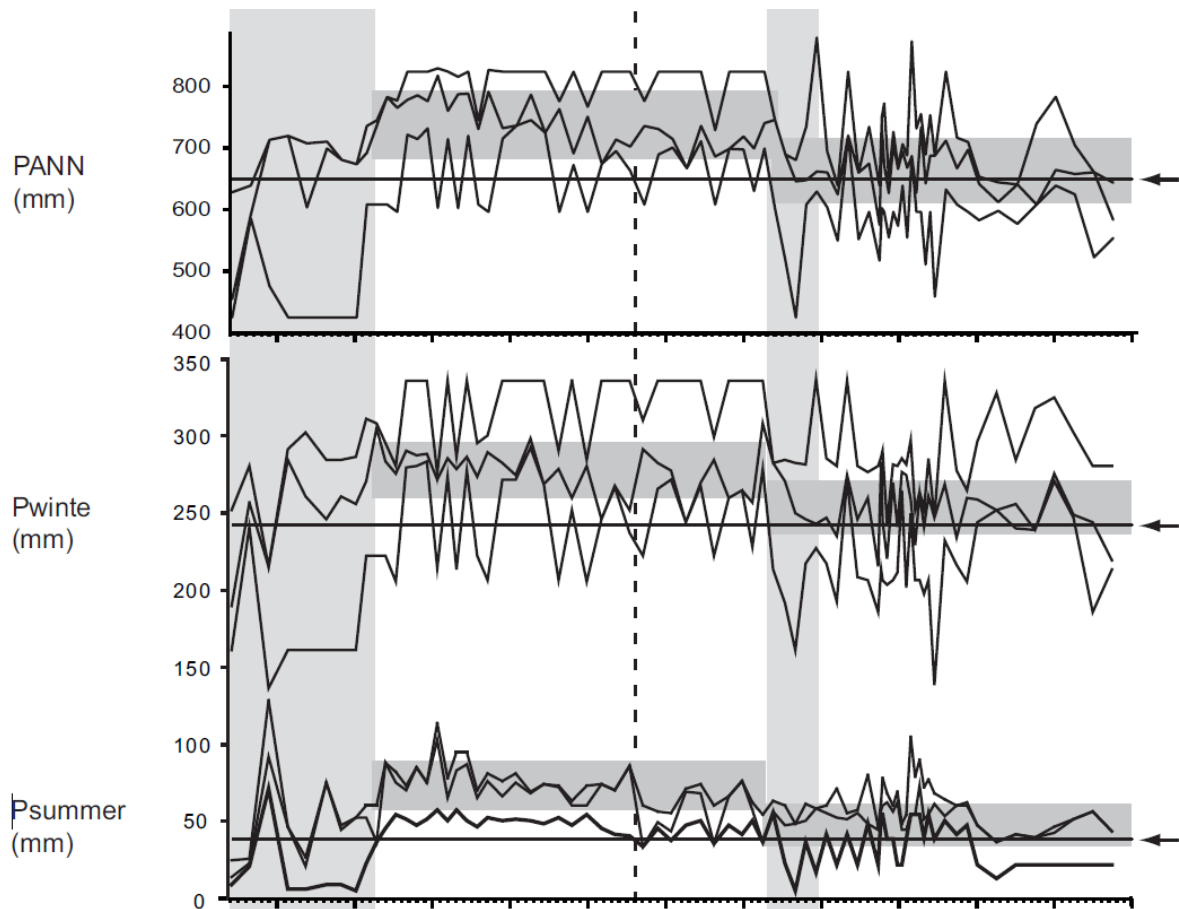
I. Historical chronology

Entries in italics pertain to the eight cities taken as case-studies in chapter II.

ca. 8000 B.C.	Sicani attested at Sicily through cave drawings.
ca. 2500 B.C.:	Elymians arrive in Sicily.
ca. 1100 B.C.:	Siculi settle in Sicily.
1100-900 B.C.:	Phoenicians settle trading posts in Sicily.
<i>1000-900 B.C.:</i>	<i>Morgantina is founded.</i>
<i>800 B.C.:</i>	<i>Segesta is founded.</i>
750 B.C.:	Greeks settle first Sicilian colonies.
734-733 B.C.:	Syracuse is founded.
600-265:	Sicilian Wars between Sicilian Greeks and Carthage.
<i>550 B.C.:</i>	<i>Heraclea Minoa is founded.</i>
<i>450 B.C.:</i>	<i>Centuripe becomes hellenized.</i>
413 B.C.:	Athenian expedition to Sicily.
<i>403 B.C.:</i>	<i>Halaesa is founded.</i>
<i>400 B.C.:</i>	<i>Iatas is founded.</i>
<i>397 B.C.:</i>	<i>Lilybaeum is founded.</i>
<i>396 B.C.:</i>	<i>Tyndaris is founded.</i>
344-338 B.C.:	Timoleon active in Sicily:
343 B.C.:	Timoleon takes Syracuse from the tyrant Dionysius II.
340-339 B.C.:	Carthage sends an enormous army but is defeated.
338 B.C.:	Timoleon establishes Greek-Carthaginian border at Halycas.
280-275 B.C.:	Phyrric War:
278-275 B.C.:	Sicilian phase.
270-215 B.C.:	Hiero II is king of Syracuse.
264-241 B.C.:	First Punic War:
<i>264 B.C.:</i>	<i>Syracusan kingdom allies with Rome.</i>
<i>263 B.C.:</i>	<i>Centuripe and Halaesa ally with Rome.</i>
<i>254 B.C.:</i>	<i>Tyndaris, Iatas and Segesta ally with Rome.</i>
241 B.C.:	Rome acquires Western Sicily.
227 B.C.:	First <i>praetor</i> sent to Sicily.
218-201 B.C.:	Second Punic War:
216 B.C.:	Roman defeat at Cannae.

215-210 B.C.:	Sicilian phase.
215-214 B.C.:	Syracuse under Hieronymus defects from Rome.
214-211 B.C.:	<i>Morgantina rebels twice and is punished by Rome.</i>
210 B.C.:	Rome conquers all of Sicily. Consul Laevinus tours Sicily. Institution of the <i>Lex Hieronica</i> .
135-131 B.C.:	First Servile War.
132-131 B.C.:	Institution of the <i>Lex Rupilia</i> .
131 B.C.:	<i>New settlers at Heraclea Minoa and possibly Iatas.</i>
122 B.C.:	Institution of the <i>Lex Sempronia Frumentaria</i> .
104-100 B.C.:	Second Servile War.
75-73 B.C.:	Cicero is <i>quaestor</i> in Sicily.
73 B.C.:	Institution of the <i>Lex Terentia Cassia</i> .
73-71 B.C.:	Verres' governorship.
70 B.C.:	Probable date of writing (and delivery) of Cicero's <i>In Verrem</i> .
67-66 B.C.:	Pompius Magnus' expedition against the Cilician pirates.
58-53 B.C.:	Pompeius Magnus is sole <i>praefectus annonae</i> for five years.
50 B.C.:	<i>Morgantina is abandoned.</i>
44 B.C.:	Caesar grants Latin rights to Sicilian cities.
42-36 B.C.:	Sextus Pompeius controls Sicily.
42-39 B.C.:	Sextus blocks Rome's grain provisions.
39 B.C.:	Treaty of Misenum.
37-36 B.C.:	Naval battles between Sextus and the triumvirs.
36 B.C.:	Octavian imposes heavy indemnities on Sicily.
42 B.C.:	Mark Anthony grants Roman citizenship to all Sicilian citizens.
36 B.C.:	Octavian revokes Roman citizenship for Sicilians.
31-27 B.C.:	End of the Republic; Augustus becomes the first <i>princeps</i> .
25 B.C.:	<i>Heraclea Minoa is abandoned.</i>
22-21 B.C.:	Augustan reorganization of Sicily, discontinuation of <i>Lex Hieronica</i> .
30-10 B.C.:	<i>Foundation of Colonia Augusta Tyndaritanorum.</i>
100 A.D.	<i>Segesta is abandoned.</i>

II. Estimated annual, summer and winter precipitation during the Holocene



Legend:

PANN = mean total precipitation.

Pwinte = mean winter precipitation.

Psummer = mean summer precipitation.

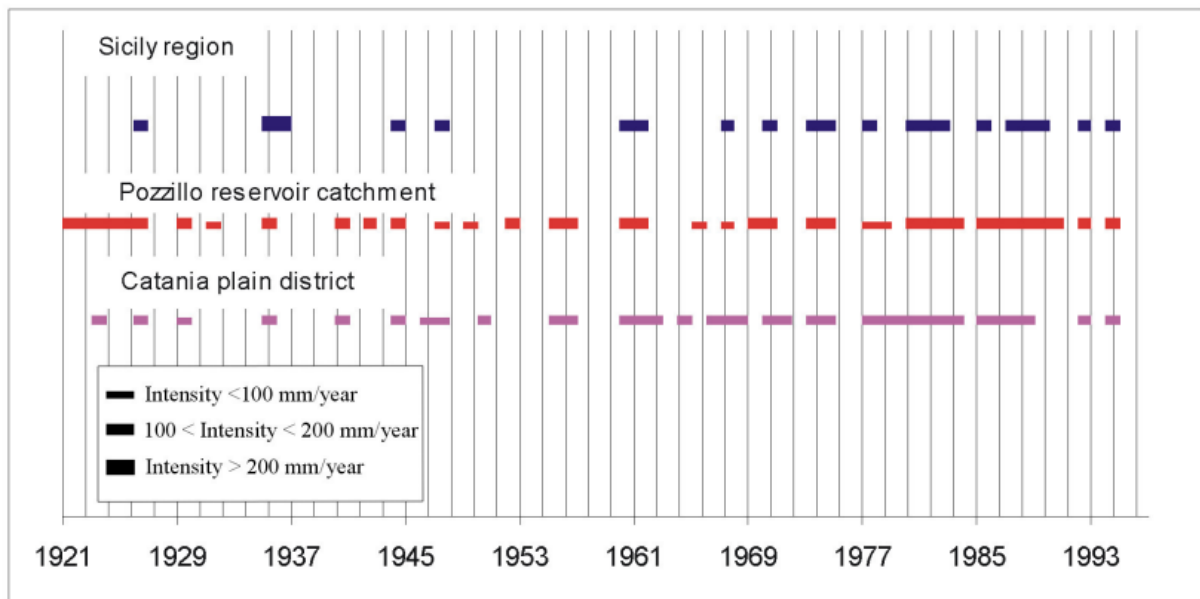
Arrows indicate present-day values.

Horizontal grey areas present margins of error.

All graphs present estimates, including high and low variation.

Source: Magny et al. (2017) 291.

III. Occurrences of drought in Sicily, at Polizzo and Catania (1921-1993)



Source: Cancelliere & Rossi (2003) 115.

IV. Late Holocene model of precipitation, compared to present-day values

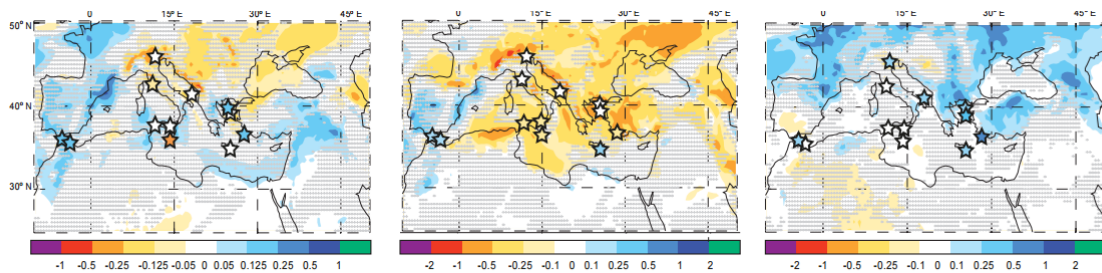


Figure 3. Data–model comparison for mid- and late-Holocene precipitation, expressed in anomaly compared to the present day (mm day^{-1}). Simulations are based on a regional model (Brayshaw et al., 2010): standard model HadAM3 coupled to HadSM3 (dynamical model) and HadRM3 (high-resolution regional model). The hatching representing statistical significance refers to the anomalies shown on the same plot, i.e., the difference between the experiment (either 8000–6000 or 4000–2000) and the present-day control run. The hatched areas indicate areas where the changes are not significant (significance level of 0.30). Pollen-inferred climate estimates (stars) are the same as in Fig. 2: annual precipitation, winter precipitation (winter is the sum of December, January, and February precipitation), and summer precipitation (summer is the sum of June, July, and August precipitation).

Source: Peyron et al. (2017) 256.