

The Economy of Ancient Greece

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Introduction ¹

The ancient Greek economy is somewhat of an enigma. Given the remoteness of ancient Greek civilization, the evidence is minimal and difficulties of interpretation abound. Ancient Greek civilization flourished from around 776 to 30 B.C. in what are called the Archaic (776-480), Classical (480-323), and Hellenistic (323-30) periods.² During this time, Greek civilization was very different from our own in a variety of ways. In the Archaic and Classical periods, Greece was not unified but was comprised of hundreds of small, independent *poleis* or "city-states." During the Hellenistic period, Greek civilization spread into the Near East and large kingdoms became the norm. Throughout these periods of ancient Greek civilization, the level of technology was nothing like it is today and values developed that shaped the economy in unique ways. Thus, despite over a century of investigation, scholars are still debating the nature of the ancient Greek economy.

Moreover, the evidence is insufficient to employ all but the most basic quantitative methods of modern economic analysis and has forced scholars to employ other more qualitative methods of investigation. This brief article, therefore, will not include any of the statistics, tables, charts, or graphs that normally accompany economic studies. Rather, it will attempt to set out the types of evidence available for studying the ancient Greek economy, to describe briefly the long-running debate about the ancient Greek economy and the most widely accepted model of it, and then to present a basic view of the various sectors of the ancient Greek economy during the three major phases of its history. In addition, reference will be made to some recent scholarly trends in the field.

Sources of Evidence

Although the ancient Greeks achieved a high degree of sophistication in their political, philosophical, and literary analyses and have, therefore, left us with a significant amount of evidence concerning these matters, few Greeks attempted what we would call sophisticated economic analysis. Nonetheless, the ancient Greeks did engage in economic activity. They produced and exchanged goods both in local and long distance trade and had monetary systems to facilitate their exchanges. These

activities have left behind material remains and are described in various contexts scattered throughout the extant writings of the ancient Greeks.

Most of our evidence for the ancient Greek economy concerns Athens in the Classical period and includes literary works, such as legal speeches, philosophical dialogues and treatises, historical narratives, and dramas and other poetic writings.

Demosthenes, Lysias, Isokrates, and other Attic Orators have left us with numerous speeches, several of which concern economic matters, usually within the context of a lawsuit. But although these speeches illuminate some aspects of ancient Greek contracts, loans, trade, and other economic activity, one must analyze them with care on account of the biases and distortions inherent in legal speeches.

Philosophical works, especially those of Xenophon, Plato, and Aristotle, provide us with an insight into how the ancient Greeks perceived and analyzed economic matters. We learn about the place of economic activities within the Greek city-state, value system, and social and political institutions. One drawback of such evidence, however, is that the authors of these works were without exception members of the elite, and their political perspective and disdain for day-to-day economic activity should not necessarily be taken to represent the views of all or even the majority of ancient Greeks.

The ancient Greek historians concerned themselves primarily with politics and warfare. But within these contexts, one can find bits of information here and there about public finance and other economic matters. Thucydides, for example, does take care to describe the financial resources of Athens during the Peloponnesian War.

Poems and dramas also contain evidence concerning the ancient Greek economy. One can find random references to trade, manufacturing, the status of businessmen, and other economic matters. Of course, one must be careful to account for genre and audience in addition to the personal perspective of the author when using such sources for information about the economy. The plays of Aristophanes, for example, make many references to economic activities, but such references are often characterized by stereotyping and exaggeration for comedic purposes.

One of the most extensive collections of economic documents is the papyri from Greek-controlled Egypt during the Hellenistic period. The Ptolemaic dynasty that ruled Egypt developed an extensive bureaucracy to oversee numerous economic activities and like all bureaucracies, they kept detailed records of their administration. Thus, the papyri include information about such things as taxes, government-controlled lands and labor, and the unique numismatic policies of the Ptolemies.

Epigraphic evidence comes in the form of stone inscriptions from public and private institutions. Boundary markers placed on land used as security for loans, called *horoi*, were often inscribed with the terms of the loans. States such as Athens inscribed honorary decrees for those who had done outstanding services for the state, including economic ones. States also inscribed accounts for public building projects and leases of public lands or mines. In addition, religious sanctuaries frequently inscribed accounts of monies and other assets, such as produce, land, and buildings, under their control. Although accounts tend to be free of human biases, honorary decrees are much more complex and the historian must be careful to consider the perspective of their issuing institutions when interpreting them.

Archaeological evidence is free of some of the representational complexities of the literary and epigraphic evidence. Pottery finds can tell us about pottery manufacture and trade. The vase types indicate the goods they contained, such as olive oil, wine, or grain. The distribution of finds of ancient pottery can, therefore, tell us the extent of trade in various goods. Finds of hoarded coins are also invaluable for the information they reveal about the volume of coins minted by a given state at a given time and the extent to which a state's coinage was distributed geographically. But such archaeological evidence is not without its drawbacks as well. The same "muteness" that frees such evidence from human biases also makes it incapable of telling us who traded the goods, why they were traded, how they were traded, how much they cost, and how many middlemen they went through before reaching their find spots. Furthermore, it is always dangerous to attempt to extrapolate broad conclusions about the economy from a small number of finds, since we can never be sure if those finds are representative of larger phenomena or merely exceptional cases that archaeologists happened to stumble upon.

Some of the most spectacular and informative finds in recent years have been made under the waters of the Mediterranean, Aegean, and Black Seas by what is known as marine (or nautical) archaeology. Ancient shipwrecks containing goods for trade have opened new doors to the study of ancient Greek merchant vessels, manufacturing, and trade. Although the field is relatively new, it has already yielded much new data and promises great things for the future.

The Debate about the Ancient Greek Economy

As stated above, the ancient Greek economy has been the subject of a long-running debate that continues to this day. Briefly stated, the debate began in the late nineteenth century and revolved around the issue of whether the economy was "primitive" or "modern." These were a poor choice of terms with which to conceptualize the ancient Greek economy and are to a great extent responsible for the intractability of the debate. These terms are clearly normative in character so that essentially the argument

was about whether the ancient Greek economy was like our "modern" economy, which was never carefully defined, but apparently assumed to be a free enterprise, capitalistic one with interconnected price-making markets. In addition, confusion arose over whether the ancient Greek economy was like a modern economy in quantity (scale) or quality (its organizing principles). Lastly, such terms clearly attempt to characterize the ancient Greek economy as a whole and do not distinguish differences among regions or city-states of Greece, time periods, or sectors of the economy (agriculture, banking, long distance trade, etc.).

Seeing extensive trade and use of money in Greece from the fifth century B.C. onward, the modernists extrapolated the existence of a market economy in Classical Greece. On the other hand, seeing traditional Greek social and political values that disdained the productive, impersonal, and industrial nature of modern market economies, the primitivists downplayed the existence of extensive trade and the use of money in the economy. Neither primitivists nor modernists could conceive of the existence of extensive trade and the use of money unless the ancient Greek economy was organized according to market principles. Moreover, neither side in the debate could call activities "economic" unless such activities were productive and aimed at growth.

Historical methods were also a factor in the debate. Traditional ancient historians who relied on philology and archaeology tended to side with the modernist interpretation, whereas historians who employed new methods drawn from sociology and anthropology tended to hold to the primitivist view. For example, Michael Rostovtzeff assembled a wealth of archaeological data to argue that the scale of the ancient Greek economy in the Hellenistic period was so great that it could not be considered primitive. On the other hand, Johannes Hasebroek used sociological methods developed by Max Weber to argue that the ancient Greek citizen was a *homo politicus* ("political man") and not a *homo economicus* ("economic man") - he disdained economic activities and subordinated them to traditional political interests.

A turning point in the debate came with the work of Karl Polanyi who drew on anthropological methods to argue that economies need not be organized according to the independent and self-regulating institutions of a market system. He distinguished between "substantivist" and "formalist" economic analysis. The latter, which is typical of economic analysis today, is appropriate only for market economies. Market economies operate independently of non-economic institutions and their most characteristic feature is that prices are set according to an aggregate derived from the impersonal forces of supply and demand among a group of interconnected markets. But material goods may be produced, exchanged, and valued by means other than market institutions. Such means may be tied to non-economic social and political institutions, including gift exchange or state-controlled redistribution and price-

setting. Hence, other tools of analysis, namely "substantivist" economics, must be employed to understand them. Polanyi concluded that ancient Greece did not have a developed market system until the Hellenistic period. Before that time, the economy of ancient Greece did not comprise an independent sphere of institutions, but rather was "embedded" in other social and political institutions. Thus, Polanyi opened the door through which scholars could begin to examine the ancient Greek economy free from the normative parameters originally imposed on the debate. Unfortunately, the grip of the old parameters has been very strong and the debate has never completely freed itself from their influence.

The Finley Model and Its Aftermath

At present the most widely accepted model of the ancient Greek economy is that which was first set forth by Moses Finley in 1973. This view owes much to the Weber-Hasebroek-Polanyi line of analysis and holds that the ancient Greek economy was fundamentally different from the market economy that predominates in most of the world today. Not only was the ancient Greek economy much smaller in scale than economies today, it also differed greatly in quality.

Although the ancient Greek word *oikonomia* is the root of our modern English word "economy," the two words are not synonymous. Whereas today "economy" refers to a distinct sphere of human interactions involving the production, distribution, and consumption of goods and services, *oikonomia* meant "household management," a familial activity that was subsumed or "embedded" in traditional social and political institutions. True, the Greeks produced and consumed goods, engaged in various forms of exchanges including long-distance trade, and developed monetary systems employing coinage, but they did not see such activities as being part of a distinct institution which we call the "economy."

According to Finley's model, the subordination of economic activities to social and political ones was a byproduct of a Greek value system that emphasized the wellbeing of the community over that of the individual. Economic activity was necessary in this system only in so far as the individual male citizen had to provide sustenance for himself and his family. This could be accomplished simply by farming a small plot of land. Beyond that, the male citizen was expected to devote himself to the wellbeing of the community by participating in the public religious, political, and military life of the *polis*.

On the other hand, ancient Greek values held in low esteem economic activities that were not subordinated to the traditional activities of managing the family farm and obtaining goods for necessary consumption. So-called *banausic* work, which included manufacturing, business, and trade (which were not tied to the land and the family

farm), and what we would call "capitalism" (investing money to make more money) were considered to be incompatible with active participation in the affairs of the *polis* and even as unnatural and morally corrupting. A life on the land, farming to produce only so much as was needed for consumption and leaving enough leisure time for active participation in the public life of the *polis*, was the social ideal. Production and exchange were to be undertaken only for personal need, to help out friends, or to benefit the community as a whole. Such activities were not to be undertaken simply to make a profit and certainly not to obtain capital for future investment and economic growth.

Given the limits put on economic activity by traditional values and the absence of a modern conception of the economy, agriculture comprised the bulk of production and exchange. Most production, therefore, was carried out in the countryside and cities were net consumers rather than producers, living off the surplus of the countryside. With limited technology and no understanding of economies of scale, cities were not hubs of industry, and manufacturing existed only on a small scale. Cities were mainly places for people to live as well as religious and governmental centers. Their contribution to the economy was only to demand the surplus produce of the countryside, manufacture limited amounts of goods, and provide market places and ports of trade for the exchange of goods.

Since the bulk of economic wealth was produced from the land and *banausic* occupations were not esteemed, the elite of ancient Greek society were landowners who consequently dominated politics, even in democratic *poleis* like Athens. Such men had little interest in manufacturing, business, and trade and, like their society as a whole, did not consider the economy as a distinct sphere separate from social and political concerns. Thus, their official policies with regard to the economy were much different from that of modern states.

Modern states undertake policies with specifically economic goals, desiring in particular to make their national economy more productive, to expand or grow, thereby increasing the per capita wealth of the state. Ancient Greek city-states, on the other hand, had an interest and involvement in what we would call economic activities (trade, minting coins, production, etc.) that, like *oikonomia* on the household level, were consumptive in nature and fulfilled traditional social and political needs, not strictly economic ones.

Finley's model also holds that there was neither a "market mentality" nor interconnected markets that could operate according to impersonal price-setting market mechanisms. Individual city-states certainly had "market places" (*agorai*), but such markets existed largely in isolation with minimal connections among them. Thus, prices were set according to local conditions and personal relationships rather

than in accordance with the impersonal forces of supply and demand. This was so in part because of the Greek socio-political emphasis on self-sufficiency (*autarkeia*), but also because the physical environment and industry of the eastern Mediterranean tended to produce similar goods, so that there were few items that a city-state needed which could not be obtained from within its own boundaries.

Moreover, according to Finley's model, the interests of Greek city-states in trade were likewise limited by traditional political concerns to the consumptive goals of ensuring the import of adequate supplies of "material wants," such as food at reasonable prices for their citizens, and revenue which could be obtained from taxes on trade. The former goal could be fulfilled by making laws that required or provided incentives for traders to bring grain into the city. Laws such as these were merely extensions of traditional political policies, like conquest and plunder, but in which a less violent form of acquisition would now be undertaken. But though the means had changed, the ends were still political; there was no interest in the economy per se. The same holds true for the traditional need of city-states for revenue to pay for public projects, such as temple building and road maintenance. Here again, old and often violent methods of obtaining revenue were augmented through such things as taxes on trade.

Finley's model has had a great impact on those who study the ancient Greek economy and is still widely accepted today. But although the general picture it presents of the ancient Greek economy has not been superseded, the model is not without flaws. It was inevitable that Finley would overstate his model, since it attempted to encompass the general character of the ancient Greek economy as a whole. Thus, the model makes little distinction between different regions or city-states of Greece, even though it is clear that the economies of Athens and Sparta, for example, were quite different in many respects. Finley also treats the various sectors of the economy (agriculture, labor, manufacturing, long-distance trade, banking, etc.) as if they were all governed equally in accordance with the general tenets of the model, despite the fact that, for example, there were significant differences between the values that applied in the landed economy and those that prevailed in overseas trade. Lastly, Finley's model is synchronic and hardly acknowledges changes in both the quantity and the quality of the economy over time.

Some close examinations of the various sectors of the ancient Greek economy in different places and at different times have supported Finley's model in its general outlines. But they have been matched by just as many studies that have revealed exceptions to the model. Thus, one recent trend in the scholarship has been to try to revise the Finley model in light of focused studies of particular sectors of the economy at specific times and places. Another trend has been simply to ignore the Finley model and bypass the old debate altogether by examining the ancient Greek economy in ways that make them irrelevant. Basically, given the quantity and the quality of the

available evidence, our attempts to understand the ancient Greek economy are greatly affected by the perspective from which we approach it. We can choose to try to characterize the entire ancient Greek economy in general, to see the forest as it were, and debate whether it was more or less similar to our own. Or we can focus in on the trees and undertake narrow studies of particular sectors of the ancient Greek economy at specific times and places. Both approaches are useful and not necessarily mutually exclusive.

The Archaic Period

Finley's model holds most true for the Archaic period (c. 776-480 B.C.) of ancient Greek history. Archaeological evidence and literary references from such works as the epic poems of Homer (the *Iliad* and the *Odyssey*), the *Works and Days* of Hesiod, and the works of the lyric poets attest to an economy that was generally small in scale and centered on household production and consumption. This is not surprising, since it was during the Archaic period that Greek civilization was re-emerging from a "Dark Age" of upheaval and forming its basic social, legal, political, and economic institutions. The fundamental political unit, the *polis* or independent city-state, appears at this time as do non-monarchal governments allowing for at least some degree of political participation among a broad swath of citizens.

For the most part, governments did not actively involve themselves in economic matters, except during the occasional political upheavals between "haves" and "have-nots" in which land might be confiscated from the few and redistributed to the many. Despite the fact that much of the Greek mainland is mountainous and the rivers generally small, there was enough fertile land and winter rainfall so that agriculture could account for the bulk of economic production, as it would in all civilizations before the modern industrial era. But unlike the large kingdoms of the Near East, Greece had a free-enterprise economy and most land was privately owned. Agriculture was carried out primarily on small family farms, though the Homeric epics indicate that there were also some larger estates controlled by the elite and worked with the help of free landless *thetes* whose labor would be needed especially at harvest time. Slaves existed, but not in such large numbers as to make the economy and society dependent on them.

As the populations of cities were fairly small, crafts and manufacturing were largely carried out within households for internal consumption. Both literary accounts and material remains, however, indicate that there was a certain amount of specialization. Artisans are referred to in the Homeric epics and the level of craftsmanship seen on items, such as metal work and painted pottery, was not likely to have been accomplished by non-specialists. Nevertheless, without large-scale manufacturing, safety from brigands on land and pirates at sea, and a monetary system employing

coinage (until late in the sixth century), markets were necessarily small, devoted to local products, and certainly not interconnected into a price-setting market economy. Trade was limited mostly to local exchanges between the countryside and the urban center of city-states. Farmers might load up their surplus goods on a small ship to sell them in a neighboring city, as Hesiod attests, but long-distance sea-borne trade was devoted almost exclusively to luxury items, such as precious metals, jewelry, and finely-painted pottery. Moreover, gift exchanges in accordance with social traditions were as prominent if not more so than impersonal exchanges for profit. In general, those who engaged in *banausic* occupations on more than a part-time basis and sought profit from such activities were looked down on and did not hold positions of prestige in society or government.

Nevertheless, it cannot be denied that the scale of the Greek economy grew during the Archaic period and if not per capita, at least in proportion to the clear growth in population. Population increases and the desire for more land were the primary impetuses for a colonizing movement that established Greek *poleis* throughout the Mediterranean and Black Sea regions during this period. These new city-states put more land under cultivation, thereby providing the agriculture necessary to sustain the growing population. Moreover, archaeological evidence for the dispersal of Greek products (particularly pottery) over a wide area indicate that trade and manufacturing had also expanded greatly since the Dark Age. It is probably no coincidence that the end of the Archaic period witnessed for the first time a divergence between the designs of merchant vessels and warships, a distinction that would become permanent. Also, after the invention of coinage in Asia Minor in the early sixth century B.C., even though various other forms of money and barter continued to be employed throughout the course of ancient Greek history, the Greeks were quick to adopt coinage and it became the predominant means of exchange from the end of the sixth century onward. The aforementioned economic trends are traced in an important recent book by David Tandy, who argues that they had a fundamental impact on the development of the social and political organization and values of the Archaic *polis*.

Key Economic Sectors of the Classical Period

During the Classical period of ancient Greek history (480-323 B.C.), continued increases in population as well as political developments influenced various sectors of the economy to the extent that one can see a growing number of deviations from the Finley model. Evidence concerning the economy also becomes more abundant and informative. Thus, a more detailed description of the economy during the Classical period is possible and more attention to the distinctions between its various sectors is also desirable.

In light of the cautionary statements made earlier in this article about overgeneralization, it is important to note that great variation existed among the regions and city-states of the ancient Greek world, especially during the Classical period. Athens and Sparta are famous examples of two almost polar opposites in their social and political organizations and this is no less true with regard to their economic institutions. Given, however, the fact that Athens is the best documented and most studied place in ancient Greek history, the various sectors of the ancient Greek economy during the Classical period will be discussed primarily as they existed in Athens, despite the fact that it was in many ways exceptional. Significant variations from the Athenian example will be noted, however, as will some recent trends in scholarship.

Public and Private Economic Sectors

It is first necessary to distinguish between the public and private sectors of the economy. Throughout most of ancient Greek history before the Hellenistic period, a free enterprise economy with private property and limited government intervention predominated. This places Greece in sharp contrast to most other ancient civilizations, in which governmental or religious institutions tended to dominate the economy. The main economic concerns of the governments of the Greek city-states were to maintain harmony within the private economy (make laws, adjudicate disputes, and protect private property rights), make sure that food was available to their citizenries at reasonable prices, and obtain revenue from economic activities (through taxes) to pay for government expenses.

Athens had numerous laws to protect private property rights and had officials and law courts to enforce them. In addition, there were officials who oversaw such things as weights, measures, and coinage to make sure that people were not cheated in the market place. Athens also had laws to ensure an adequate supply of grain for its citizens, such as a law against the export of grain and laws to encourage traders to import grain. Athens even had agreements with other states in which the latter gave favorable treatment to traders bound for Athens with grain.

On the other hand, Athens did not tax its citizens directly except in cases of state emergencies (*eisphorai*) and in requiring the wealthiest citizens to perform public services (*liturgies*). Most taxes were indirect: market taxes, port taxes, import-export taxes, and taxes on foreigners who took up long-term residence in Athens. Taxes were collected by companies of private tax farmers who bid on contracts issued by the state. In addition to taxes, Athens obtained revenue from leases of publicly owned lands and mines. Revenue was necessary for various government expenditures, including administrative costs, public festivals, and maintenance of widows and orphans of soldiers who died in battle as well as building ships' hulls for the navy,

walls for the city, and temples for the gods. Such state expenditures could have a significant impact on the economy, as is clear from the large quantities of money and labor that appear in the inscribed accounts of the building projects on the Athenian acropolis.

Although the Finley model is right in many respects with regard to the limited interest and involvement of the state in the economy, one recent trend has been to show through carefully focused examinations of specific phenomena that Finley pressed his case too far. For example, Finley drew too sharp a distinction between the interests of non-citizen (and, therefore, non-landowning) traders and the landed citizens who dominated Athenian government. It is true that the latter might not have exactly the same economic interests as the former, but the interests of the two were nevertheless complementary, for how could Athens get the grain imports it required without making it in the interest of traders to bring it to Athens?. Moreover, it has been argued that the policies of Athens with regard to its coinage betray a state interest in the export of at least one locally produced commodity (namely silver), something completely discounted by the Finley model.

But again, Finley was probably right to argue that during the Archaic and Classical periods the vast majority of economic activity was left untouched by government and carried out by private individuals. On the other hand, by the Classical period a self-sufficient household economy was an ideal that was becoming increasingly difficult to maintain as the various sectors of economic activity became more specialized, more impersonal, and more profit oriented as well.

Land

As in the Archaic period, the most important economic sector was still tied to the land and the majority of agriculture continued to be carried out on the subsistence level by numerous small family farms, even though the distribution of land among the population was far from equal. Primary crops were grains, mostly barley but also some wheat, which were usually sown on a two-year fallowing cycle. Olives and grapes were also widely produced throughout Greece on land unsuitable for grains. Animal husbandry focused on sheep and goats, which could be moved from their winter lowland pasturage to the moister and cooler mountainous regions during the hot summer months. Cattle, horses, and donkeys, though less numerous, were also significant. While usually sufficient to support the population of ancient Greece, unpredictable rainfall made agriculture precarious and there is much evidence for periodic crop failures, shortages, and famines. Consequently, competition for fertile land was a hallmark of Greek history and the cause of much social and political strife within and between city-states.

One recent trend in the study of ancient Greek agriculture is the use of ethnoarchaeology, which attempts to understand the ancient economy through comparative data from better-documented modern peasant economies. In general, studies employing this method have supported the prevailing view of subsistence agriculture in ancient Greece. But caution is necessary, since there have been changes in the physical environment of and settlement patterns in Greece over time that can skew comparative analyses. Ethnoarchaeology has also been used to show that Greek farmers in both ancient and modern times have had to be flexible in their responses to wide variations in local topographical and climatic conditions and, thus, varied their crops and fallowing regimes to a significant degree. Rational exploitation of fluctuations in production brought on by such variations might have been the means by which some farmers were able to obtain enough wealth to rise above their peers and become members of a landed elite and this might point to a productive mentality at odds with the Finley model.

Metals were another important landed resource of Greece and so mining occupied an important place in the economy. Ancient Greeks typically used bronze and iron tools and weapons. There is little evidence that copper, the principal metal in bronze, was ever mined in abundance on mainland Greece. It had to be imported from the island of Cyprus, where it existed in large quantities, and other more distant regions. Tin, the other metal in bronze, was also rare in Greece and had to be imported from as far away as Britain. Iron is relatively plentiful throughout Greece and there is archaeological evidence of iron mining; however, literary references to it are few and so we know little about the process.

Precious metals were used in jewelry, art, and coinage. Athens had an abundance of silver and we know much about its mining industry from surviving inscriptions of government mine leases to private entrepreneurs. The mines were extremely productive, providing Athens with an income of 200 *talents* per year for twelve years from 338 B.C. onward. One *talent* was the equivalent of around nine year's worth of wages for single skilled laborer working five days a week, 52 weeks a year, according to the wage rates we know from 377 B.C. Though productive in silver, ancient Greece was not as rich in gold, which was found primarily in Thrace and on the islands of Thasos and Siphnos.

Recent scholarship continues to focus on the silver mines of Athens, drawing not only on the inscribed mine leases, but also on extensive archaeological investigation of the mines themselves. They tend to indicate that, contrary to the Finley model, mining in Athens was specialized enough and extensive enough to constitute an "industry" in the modern sense of the word and one geared toward growth. In a study of mine-leasing records Kirsty Shipton has shown that the elite of Athens preferred mines leases, with their potential for greater profits, to land leases. Thus, the traditional preference of the

elite for the consumptive acquisition of land and disdain for productive investments for profit postulated by the Finley model might be a characteristic feature of the ancient Greek world as a whole, but it does not entirely hold for Athens in the Classical period.

Stone for building and sculpture was another valuable natural resource of Greece. Limestone was available in abundance and fine marble could be found in Athens on the slopes of Mount Pentelikos and on the island of Paros. The former was used in building the Parthenon and the other structures of the Athenian acropolis while the latter was often used for the most famous ancient Greek free-standing and relief sculptures.

Labor

It is notoriously difficult to estimate the population of Athens or any other Greek city-state in ancient times. Generally accepted figures for Athens at the height of its power and prosperity in 431 B.C., though, are in the range of approximately 305,000 people, of which perhaps 160,000 were citizens (40,000 male, 40,000 female, 80,000 children), 25,000 were free resident foreigners (*metics*), and 120,000 were slaves. Athens was the largest *polis* and the populations of most city-states were probably much smaller. Citizens, *metics*, and slaves all performed labor in the economy. In addition, many city-states included forms of dependent labor somewhere in between slave and free.

As stated above, much of the agriculture of ancient Greece was carried out by small farmers who were exclusively free citizens, since non-citizens were barred from owning land. But although being a farmer was the social ideal, good land was scarce in Greece and it is estimated that in Athens about a quarter of the male citizens did not own land and had to take up other occupations for their livelihoods. Such occupations existed in the manufacturing, service, retail, and trade sectors. These "business" occupations were not only socially disesteemed, but they also tended to be small scale. Wage earning was very much looked down upon, since working for another person was thought of as an impingement on freedom and akin to slavery. Thus, free men doing the same work side by side with *metics* and slaves on the Acropolis building projects earned the same wages. Yet wages appear to have been adequate to make a living. In Athens the typical wage for a skilled laborer was one *drachma* per day at the end of the fifth century and two and a half *drachmai* in 377. In the fifth century a Greek soldier on campaign received a ration of 1 *choinix* of wheat per day. The price of wheat in Athens at the end of the fifth century was 3 *drachmai* per *medimnos*. There are 48 *choinices* in *amedimnos*. Thus, one *drachma* could buy enough food for 16 days for one person, four days for a family of four.

One thing that made up for the limited number of free citizens who were willing or had to become businessmen or wage earners was the existence of *metics*, foreign-born, free non-citizens who took up residence in a city-state. It is estimated that Athens had about 25,000 *metics* at its height and since they were barred from owning land, they engaged in *banausic* occupations that tended to be looked down upon by the free citizenry. The economic opportunities afforded by such occupations in Athens and other port cities where they were particularly abundant must have been significant. They attracted *metics* despite the fact that *metics* had to pay a special poll tax and serve in the military even though they could not own land or participate in politics and had to have a citizen represent them in legal matters. This is confirmed by the numerous *metics* in Athens who became wealthy and whose names we know, such as the bankers Pasion and Phormion and the shield-maker Cephalus, the father of the orator, Lysias.

Foreign-born, free non-citizen transients known as *xenoi* also played an important role in the ancient Greek economy, since it is apparent that many, though certainly not all, those who carried out long-distance trade were such men. Like *metics*, they too were subject to special taxes, but few rights.

Slaves comprised an undeniably large part of the labor force of ancient Greece. In fact, it is fair to say, as Finley did, that ancient Greece was a "slave dependent society." There were so many slaves; they were so essential to the economy; and they became so thoroughly embedded into the every day life and values of the society that without slavery, ancient Greek civilization could not have existed in the manner it did. In Classical Athens it has been estimated that there were around 120,000 slaves. Thus, slaves comprised over a third of the total population and outnumbered adult male citizens by three to one.

The slaves of Athens were chattel, that is the private property of their owners, and had few, if any, rights. The demand for them was high as they performed almost every kind of work imaginable from agricultural labor to mining labor to shop assistants to domestic labor even to serving as the police force and secretaries for the government in Athens. About the only thing slaves did not normally do was military service, except in emergencies, when they did that too.

Slaves were supplied by a variety of sources. Many were war captives. Some were enslaved for failure to pay debts, though this was outlawed in Athens in the early sixth century B.C. Some were foundlings, abandoned children rescued and reared in return for their labor as slaves. Of course, the children of slaves would also be slaves. In addition, there was an extensive and regular slave trade that trafficked in people who had become slaves by all the means mentioned previously.

In part because of the diverse means by which slaves were supplied, there was no particular race that was singled out for enslavement. Anyone could become a slave if unfortunate enough, including Greeks. It does appear, however, that a large percentage of slaves in Greece originated in the Black Sea and Danubian regions. In most cases they were probably captives from internecine tribal wars and sold to slave traders who shipped them to various parts of the Greek world.

The treatment of chattel slaves varied, depending on the whims of individual slave owners and the types of jobs done by the slaves. Slaves who worked in the silver mines of Athens, for example, worked in dangerous conditions in large numbers (as many as 10,000 at a time) and had virtually no contact with their owners that could result in human bonds of affection (they were usually leased out). On the other hand, slaves who worked in households assisting the matron of the family in her household tasks were probably treated much better as a rule. Their labor was less strenuous and since they worked in close proximity with their owners' families, at least some human bonds of affection were likely to form between them and their owners. Some slaves even lived on their own and ran their owners' businesses largely unsupervised.

One aspect of ancient Greek slavery that is often cited as evidence for it being more "humane" than other slavery regimes is manumission. There is enough evidence for slaves being freed to make us believe that manumission was not uncommon and many slaves could probably hope for freedom, even if most of them never actually obtained it. But manumission was quite self-serving for slave owners, since it made slaves much less likely to risk rebellion in the hope that they might some day be given their freedom. As it turns out, there were only two noteworthy large-scale rebellions of chattel slaves in the history of ancient Greece. Moreover, inscriptions from the religious sanctuary of Delphi from the Hellenistic period show that slaves almost always had to compensate their owners for their freedom, either in the form of cash or some other valuable commodity, like their own children, who would also be slaves of the master and eventually replace their aging parents with young labor. So it is a dubious matter to say that the manumission of slaves is a testament to the humanity of ancient Greek slavery. Individual slaves might benefit, but the practice allowed the institution of slavery to flourish throughout Greek history.

When slaves were freed, they did not become citizens, but rather *metics*. Yet even though they still could not possess the full rights and privileges of citizens, they could prosper economically, just as other *metics* could. In Athens the prominent and wealthy *metic* banker, Pasion, for example, was originally a slave who assisted his masters Antisthenes and Archestratus. By the terms of his will, Pasion in turn manumitted his own slave assistant, Phormion, and not only left him his bank, but also stipulated that Phormion marry his widow and manage the inheritance of his son, Apollodorus.

In addition to chattel slavery, there were other forms of dependent labor in the ancient Greek world. One famous example is *helotry*, known principally from the city-state of Sparta. The *helots* of Sparta were agricultural serfs, indigenous peoples conquered by the Spartans and forced to work their former lands for their Spartan overlords. They were not the private property of the individual Spartans, who were allotted the former lands of the *helots*, and could not be bought or sold. But their mobility was completely restricted; they had very few rights; they had to turn over a large percentage of their produce to their Spartan overlords; and they were routinely terrorized as a matter of Spartan state policy. The one drawback for the Spartans of using *helot* labor, though, was that the *helots*, living still on their former homeland and having a sense of ethnic unity, were prone to revolt and did so on several occasions at great cost both to themselves and to the Spartans.

With the exception of Sparta and a few other city-states, women in ancient Greece, free citizens or otherwise, could not control land. They could own it in name only and were not allowed to dispose of it as they saw fit, but were legally obliged to yield control of it to a male representative. Since land was the chief source of wealth in the ancient Greek economy, the inability to control it severely constrained the economic role of women. The ideal was for women to get married, have children, raise them, and carry out the indoor tasks of the household, such as cooking and textile production.

Of course, not all women could live up to such an ideal at all times. Women undoubtedly helped outdoors on the farm during harvest time. Those of poorer families might by necessity have to sell in the market place what little surplus produce their households could generate or perform service-oriented jobs for others for wages. Female *metics* and slaves did similar work and also comprised the majority of the prostitutes of Athens, which was a legal profession. Prostitutes, though, ranged from lowly brothel workers to high-class call girls, the latter of which, such as Aspasia, sometimes obtained prominence in Athenian society.

Despite their disdain for certain types of work and their dependence on slave labor, most Greeks had to work hard to make a living. Yet they did not develop a "work ethic" and did not consider work to be ennobling, but simply necessary. Hence, if one could afford a slave to do one's work, then one bought a slave. The availability of cheap slaves was a major factor in Greek attitudes toward labor and may also explain why there were no labor unions in Greece. For how could wage-earners pressure their employers for better conditions or wages when the latter could always replace them with slaves if necessary?

Manufacturing

Slavery also affected manufacturing in ancient Greece. It is often said that technology and industrial organization stagnated in ancient Greece because the availability of cheap slave labor obviated any imminent need to improve them. If one wanted to produce more, one merely bought a few more slaves. Thus, most manufactured products were literally hand-made with simple tools. There were no assembly lines and no big factories. The largest manufacturing establishment we know of was a shield factory owned by the *metic*, Cephalus, the father of the orator, Lysias, which employed 120 slaves. Most manufacturing was carried out in small shops or within households. Hence, in comparison with agriculture, manufacturing comprised a small part of the ancient Greek economy.

Nevertheless, documentary and archaeological evidence attests to a wide variety of manufactured items and some in large quantities. Among the most extensively manufactured products was clay pottery, the remains of which archaeologists have found scattered throughout the Mediterranean world. The wheel-made pots took many shapes appropriate for their contents and use, which ranged from *hydria* for water to *amphorae* for olive oil and wine to *pithoi* for grain to *aryballoi* for perfume to *kylikes* for drinking cups. Finely painted vases were also manufactured for decorative and ritual purposes. The finest, most numerous, and widely dispersed of these were made in Corinth, Aegina, Athens, and Rhodes.

Literary accounts as well as scenes from painted vases make it clear that the ancient Greeks left textile production largely to women. The principal material they worked with was wool, but linen from flax was also common. Textiles were used in turn in the manufacture of clothing. Again, women were largely responsible for this and it was done primarily within the household. Textiles were often dyed, the most desirable dye being a reddish purple color derived from aquatic *murex* snails. These had to be harvested, mashed into a jelly, and then boiled to extract the dye.

Although the trees of Greece were for the most part not particularly good for woodworking materials and especially not for large-scale building, the Greeks did use wood extensively and, therefore, had to import good timber from places like Macedonia, the Black Sea region, and Asia Minor. Given the countless islands of Greece, it is not surprising that shipbuilding was an important sector of manufacturing. Vessels were needed for commercial as well as military uses. In Athens the state obtained the necessary timber for the ships (and oars) of its navy, but it contracted with carpenters who worked under the supervision of state officials to craft the timber into the warships that were so vital for Athenian power in the Classical period.

Buildings ranged from private houses to monumental stone temples. The former tended to be rather humble, made of unbaked mud brick laid on a stone foundation

and covered by a thatched or tiled roof. On the other hand, the great temples of ancient Greece required much organization, many resources, and incredible technical skill. As is evidenced by the extant accounts for the construction of the buildings of the Athenian acropolis, the work was normally contracted out in small units to private individuals who either worked alone or in charge of others to do anything from quarrying marble to transporting wooden beams to sculpting facades. The degree of specialization varied. In some cases we see contractors carrying out a variety of tasks, whereas in others we see them specializing in only one.

Metal crafts were highly specialized. The Greeks smelted iron, but only in wrought form. They were unable to achieve furnace temperatures high enough to make pig iron and did not have the technical know-how to add carbon to the smelting process with enough precision to make steel with any consistency. Blacksmiths crafted body armor, shields, spears, swords, farm implements, and household utensils. Bronze casting reached the level of fine art in Classical Greece. Sculptors used the lost-wax method, in which they first made a clay model of a statue, then covered the model with a layer of wax, which they then covered again with another layer of clay. Small openings were left in the outer clay covering, into which molten bronze was poured. The hot molten bronze melted the wax, which then flowed out another opening in the outer clay covering. After the bronze cooled the outer clay covering was broken off, leaving the cast bronze.

It is clear that in the Classical period in Athens there was much specialization in manufacturing and that the quantity of goods was far greater than that which could have been produced in a purely "household economy." At the same time, however, the scale and organization of manufacturing was a far cry from those of industrialized civilizations of recent centuries.

Markets and Prices

According to the Finley model, there was no network of interconnected markets to form a price-setting market economy in the ancient Greek world. Although this is true for the most part, like other aspects of the Finley model, the case is overstated. There do, for example, appear to be connections between markets for some commodities, such as grain and probably precious metals as well. In the case of grain, it can be shown that supply and demand over long-distances did have an impact on prices and traders sought to take advantage of the lag-time between price adjustments in order to make a profit. Obviously, though, this is nothing like the modern world in which the price of crude oil changes instantly worldwide in reaction to a change in supply from one of the major producers. For the most part in ancient Greece, prices were set in accordance with local conditions, personal relationships, and haggling.

Government price-fixing was limited. Although there is evidence that Athens, for example, fixed the retail price of bread in proportion to the wholesale price of grain, there is no evidence that it fixed the price of the latter. Even in times of severe grain shortages, Athens was content to allow traders bringing grain to Athens to charge the going rate. In such cases, the state alleviated the crises for its citizens by paying the going rate for the grain and then reselling it to its citizenry at a lower price.

Despite the general absence of interconnected markets, however, there were market places. Each city-state had at least one market place (*agora*) in the heart of city and a port market (*emporion*) as well, if it had a good harbor. The *agora* was a place of much activity, serving not only as a center of economic exchange, but also as a political, religious, and social center. In the *agora* one could find law courts, offices for public officials, and coin mints as well as shrines and temples. In fact, *agorai* were considered sacred places to the degree that they were marked off with boundary stones across which no one who had the stain of religious pollution could cross. Within the *agora* economic activities were segregated by types of goods, services, and labor so that there were specific places where one could regularly find the fishmongers, blacksmiths, money changers, and so on.

Ancient Greek city-states regulated the economic activities that took place in their markets to a certain degree. Public officials oversaw weights, measures, scales, and coinage to limit and resolve disputes in exchanges as well as to ensure state interests. For example, Athens employed a publicly owned slave to check coins and guard against counterfeiters. In this way, Athens protected the integrity of its own coinage as well as the interests of buyers and sellers. The state ensured the affordability of key goods, such as bread, by fixing its retail prices relative to the wholesale price of grain. Various activities in the market place were also taxed by the state. Port and transit taxes affected exchanges in *emporion* like the Piraeus of Athens and *xenoi* had to pay a special tax for engaging in transactions in the *agora*.

Trade

Local trade between countryside and urban center and on the retail level within cities continued largely as it had in the Archaic period. But rather than producers transporting and selling their surplus goods directly in city markets, specialized retailers (*kapeloi*) who profited as middlemen between producers and consumers became more the norm. Local trade goods could be probably transported over short distances on land. But long-distance trade over land was difficult and time consuming, given the mountainous topography of Greece and the fact that the fragmented city-states of Greece never built an extensive system of paved roads that tied them together in the manner of the Roman Empire. Most "roads" between cities were single track

and suitable only for pack animals, though there were some on which wheeled carts could be pulled by oxen, donkeys, or mules.

Long-distance trade was primarily done by merchant ships over the waters of the Aegean, Mediterranean, and Black Seas. Evidence from the Attic Orators indicates that during the Classical period overseas trade developed into a specialized and important sector of the economy. Trade was carried out by private individuals and not organized by the state. A typical trading venture involved a non-citizen trader (*emporos*) who either owned his own ship or rented space on a ship owned by another (*naukleros*). In most cases described by the orators, the traders typically borrowed money from a citizen lender to finance the venture. There is some dispute among scholars whether such loans constituted productive borrowing on the part of the traders or were just a type of insurance, because the loans would only have to be repaid if the ship and cargo reached their contracted destinations. From the perspective of the lenders, the loans were certainly productive, since they charged interest at a rate much higher than that which applied to loans on the security of land, anywhere from 12 to 30%.

Marine archaeology has recently increased our knowledge of merchant vessels and their cargoes tenfold by the discovery of several ancient shipwrecks. The ships appear to have been generally small by modern standards. In 1968 the well-preserved wreck of a merchant ship from c. 300 B.C. was found off the coast of Kyrenia in Cyprus. Being only 35 feet long and 15 feet wide with a capacity of 30 tons, it is probably the kind of merchant vessel that made short hauls and kept within sight of the coastline. But other shipwrecks as well as evidence from the Attic Orators seem to indicate that the typical capacity of merchant vessels that traveled over long distances on the open sea was some 80 tons.

Many of the goods traded throughout ancient Greek history were luxury goods, manufactured items, such as jewelry and finely painted vases, as well as specialty agricultural products like fine wine and honey. Necessities were also traded, however, for without long-distance trade, many Greek cities would not have been able to obtain metals, timber, wine, and slaves. One of the most extensively traded necessity items was grain, which came to Athens typically from the Black Sea region, Thrace, and Egypt. According to the orator, Demosthenes, Athens imported some 400,000 *medimnoi* (approximately 4,800,000 liters) of grain per year in the late fourth century from the Crimean kingdom of the Bosphorus alone.

Chiefly because of the need for certain imports, such as grain and timber, and for revenue drawn from taxes on trade, many cities did have an interest and involvement in overseas trade. Athens in particular made laws that prohibited the export of grain produced in Athens and required that loans on trading ventures be for cargoes of grain

and that ships bringing grain into the Piraeus sell one-third of it on the spot and the remaining two-thirds in Athens. Athens also instituted special courts to expedite the adjudication of disputes involving traders, granted honors and privileges to anyone who performed extraordinary services relating to trade for the city, and made agreements with other states to obtain favorable conditions for those bringing grain to Athens.

In all the aforementioned examples Athens' chief interest was to supply itself with imported grain so that its citizenry could obtain food at reasonable prices. Athens was not particularly concerned with helping traders and enhancing their profits per se or in obtaining a trade surplus or to protect home produced goods against imported foreign ones. To this extent, then, the Finley model holds true, even if it is clear that the Athenian state recognized that its interests were complementary with those of foreign traders and, thus, had to help them in order to help itself.

Moreover, it does appear that Athens had some concern about its home produced products as well, at least in the case of silver. Xenophon, an Athenian writer from the fourth century, noted that Athens could always be assured of traders bringing their goods into Athens, because traders knew they could always get a valuable trade commodity, namely silver in the form of Athenian coinage, in exchange. To ensure the demand for its silver, Athens took great care to maintain the reputation of its coinage for high quality and to associate that reputation with a familiar design that went unchanged for several centuries. Such a policy attests to a state interest in production and exports, at least in this sector of the economy.

Athens was also motivated to encourage trade to obtain revenue from taxes. Both transient and resident foreigner traders had to pay poll taxes in Athens that citizens did not. Athens also had various port, transit, and market taxes that would benefit by increased trade, including a two percent tax on all imports and exports.

Money and Banking

With few exceptions (Sparta being the most famous), the Greeks of the Classical period had a thoroughly monetized economy employing coinage whose value was based on precious metals, principally silver. The value of the coinage was commensurate to the value of the precious metal it contained with a small mark-up, since the value of the metal was guaranteed by its issuing state. The tie of the Greek monetary system to the supply of precious metals limited the ability of governments to influence their economies through the manipulation of their money supplies. However, we do know of cases when states debased their coinages for such purposes.

Ancient Greek coins are similar in appearance to modern ones. But like other manufactured products in ancient Greece, they were made by hand. A blank metal circular "flan" was placed on an obverse die that rested on an anvil and then was struck with a hammer bearing a reverse die. The nature of the process naturally produced coins in which the image was often poorly centered on the flan. Nevertheless, the issuing authority, usually a government, was clear as the designs or "types" of the coins expressed an image symbolic of the issuing authority and were often augmented by a "legend" of letters that spelled out an abbreviation of the issuing authority's name.

Coinage was issued in a variety of denominations and weight standards by various city-states. The chief weight standards of the Classical period were the Attic, Aeginetan, Euboic, and Corinthian. The basis of the Attic standard was the silver *tetradrachm* of 17.2 grams, which retained the design of the head of Athena on the obverse and her symbolic owl on the reverse throughout the Classical period. It was the most widely circulated coinage during this time and appears in large numbers of hoards found throughout the Greek world and beyond. This was due not only to the far reach of Athenian trade, but also to Athenian imperialism. Athens used its coinage to pay for its military operations abroad and even issued the "Standards Decree," which for a few decades of the fifth century required the many cities of the Aegean Sea under its control to discontinue their local types and use only Athenian coinage. The local coinage had to be turned in, melted down, and re-struck as Athenian coinage for a fee. Unlike that of Athens, most city-states' coinages circulated only locally. When such local issues were taken abroad, they were probably treated as bullion, as can be inferred from test-cuts often found on them.

A recent debate among scholars concerns the degree to which coinage was an economic or a political phenomenon in the ancient Greek world. Finley's model, of course, holds that coinage had strictly political functions. Finley believed that coinage was merely a tool designed to reinforce and project a city-state's civic identity. States minted coins not to facilitate economic transactions among their citizens, but merely for state purposes so that, for example, it had a convenient medium through which to collect taxes or make state expenditures. Athens' "Standards Decree" was not undertaken for economic gain, but for political purposes to facilitate tribute payments and to show Athens' subjects who was boss.

But here again Finley goes too far. Although the type of a Greek coin certainly expressed political symbols and could, therefore, serve as a political tool, such symbolism was largely lost on people who used the coins in places like Egypt, the Levant, Asia Minor, and Mesopotamia, where hoards of Greek coins have been found in abundance. The fact that they could use the coins independently of their original political context (and for what else besides economic purposes then?) is a good reason

to believe that the Greeks could do so as well. Moreover, as Henry Kim has recently argued, the minting of large quantities of small-denomination coinage from the outset in Greece shows that the state did have a concern for the wide use of coinage at the micro-level by common people in day-to-day economic exchanges, not just for large-scale public and political purposes.

Nevertheless, one of the most active areas of research on ancient Greek money and coinage today concerns its representational nature and place within sectors other than the economy, including religion, society, and politics. Both Leslie Kurke and Sitta von Reden have argued that the advent of a monetized economy employing coinage need not have undermined traditional values or led to a disembedding of the economy. Rather, the symbolic aspect of coinage could be manipulated to reinforce traditional social and religious practices that were non-economic in the modern sense. In her analysis of the poetry of Pindar, for example, Kurke argues that the poet re-embedded money within traditional social values, thereby allowing the landed aristocratic elite to embrace money and its potential for de-personalizing social interactions without discarding the old social ties and values that bolstered their privileged place in society. Although von Reden believes that the use of coinage arose within an embedded economic context and, therefore, did not have to be re-embedded, she has argued that coinage and other forms of money did not have an intrinsically economic use or meaning in ancient Greece, but rather multiple meanings that were determined by the context within which they were used, which could be social, religious, or political as well as economic.

Given that the ancient Greeks did have a monetized economy, it is not surprising that they also developed banking and credit institutions. It is generally agreed that at the very least, bankers, who were *metics* as a rule (note Pasion and Phormion above), performed various functions from money-changing to securing deposits in cash and other assets. The question whether bankers lent out money deposited by others at interest, however, is the subject of some debate. Paul Millett, a student of Finley, not surprisingly argues in his book, *Lending and Borrowing in Ancient Athens*, that bankers did not loan out other peoples money for interest and he formulates a model in which lending and borrowing were predominantly done for consumptive purposes and, therefore, thoroughly embedded in traditional social relations. In contrast, Edward Cohen's book, *Athenian Economy and Society: A Banking Perspective*, employs a close philological analysis of the evidence in his assertion that productive lending and borrowing, divorced from concerns for personal relationships, were common in Classical Athens and that bankers did indeed lend out deposited money at interest. Although Millett may be right that much of the lending and borrowing in Athens was for consumptive purposes, particularly those secured by landed property, it is hard to deny that the evidence of productive lending and borrowing from banking

practices, numerous maritime loans, and even temple loans in the Classical period constitute something more than just exceptions to the rule.

Economic Changes during the Hellenistic Period

In large part owing to the Near Eastern conquests of Alexander the Great, but also because of social and economic changes that had already been occurring during the Classical period, the economy of the Hellenistic period (323-30 B.C.) grew immensely in scale. The Finley model is probably right in general to hold that the essentially consumptive nature of the economy in the traditional Greek homelands changed little during this time. But it is clear that there were significant innovations in some places and sectors on account of the collision and fusion of Greek notions of the economy with those of the newly won lands of the Near East. Thus, we see greatly increased government control over the economy, as evidenced most strikingly in the surviving papyrus records of the Greek Ptolemaic dynasty that ruled Egypt.

A large percentage of the land and, therefore, agriculture, was controlled by the Greek royal dynasties that ran the Hellenistic kingdoms. Peasants whose status lay somewhere between slave and free not only worked the king's lands, but were also often required to labor on other royal projects. The Ptolemies of Egypt dominated agriculture to such an extent that they instituted an official planting schedule for various crops and even loaned out the tools used by farmers on state-owned lands. Almost all produce from these estates was turned over to the government and redistributed for sale to the population. Some crown lands, however, were assigned to government officials or soldiers and though technically still the property of the state, they often came to be treated as de facto private property.

The Ptolemaic state also involved itself in various manufacturing processes, such as olive oil production. Not only were the olives cultivated on state-controlled lands by peasant labor, but the oil was extracted by contracted labor and sold at the retail level by licensed dealers at fixed prices. However, the state probably had no intention to improve efficiency or to provide better quality olive oil at lower prices to its citizens. The Ptolemies instituted a tax on imported olive oil of 50 percent that was essentially a protective tariff. The goal of the government seems to have been to protect the profits of its state-run business.

Yet for all its interference in the economy, the Ptolemaic government did not assemble a state merchant fleet and instead contracted with private traders to transport grain to and from public granaries. It also left it up to private traders to import the few goods that Egypt needed from abroad, including various metals, timber, horses, and elephants, all of which were essential for the Ptolemies' standing mercenary army and fleet. But although the Ptolemies also exported wheat and papyrus, for the most part,

the economy of Egypt was a closed one. Unlike the other Hellenistic kingdoms, Egypt minted coins on a lighter standard than the Attic one universalized by Alexander the Great. Moreover, in 285, the Ptolemies barred the use of foreign coins in Egypt and required them to be turned in to government officials, melted down, and re-minted as Egyptian coinage for a fee. Although Egypt controlled gold mines in Nubia, it did not produce silver and had chronic shortages of silver coins for daily transactions. Thus, many exchanges were performed in kind rather than in cash, even though value was always expressed in cash equivalents.

Despite its chronic shortages of silver coins and its closed coinage system, Egypt still had a coin-based economy largely because of Alexander the Great, who flooded the economies of the eastern Mediterranean with coins and monetized some places in the Near East for the first time. Along with coinage, Greek banking practices also made their way into these areas. Thus, the general scale of economic activities increased as large kingdoms of the Near East and the Greek mainland and islands became more interconnected. Although this was offset to some degree by political instability and warfare during the Hellenistic period, in general we do see economic activity on a larger scale and increased specialization as some places, such as Tyre and Sidon in Phoenicia, became renowned for particular products, in this case purple dye and glassware respectively. Moreover, thousands of *amphorae* whose handles were stamped with names of issuing magistrates have been found that, if nothing else, reveal a very high volume of pottery production and may also allow scholars some day to reconstruct in more detail other aspects of the economy, such as agricultural production, land tenure, and trade patterns.

The Hellenistic period is known for its technological innovation and some new technologies did have an impact on the economy. Archimedes' screw-like pump was used to remove water from mines and to improve irrigation for agriculture. In addition, new varieties of wheat and the increased use of iron ploughs improved yield while better grape and olive presses facilitated wine and oil production. Unfortunately, some of the most impressive technological innovations of the Hellenistic period, such as Heron's steam engine, were never applied in any significant way. Thus, most production continued to be low tech and labor intensive.

All in all, then, although the scale of the economy increased during the Hellenistic period, consumption still seems to have been the primary goal. Technology was not applied as much as it might have been to increase production. States were much more involved in economic affairs, both in controlling production and in collecting taxes on countless items and activities, but mostly just to extract as much revenue from them as possible. The revenue was spent in turn in royal benefactions (*euergetism*), but mostly only for ostentatious display that threw money into non-productive sink holes.

Conclusion

The foregoing survey shows that the Finley model provides a reasonable, if simplified, general picture of the ancient Greek economy. Overall, the ancient Greek economy was very different from our own. It was much smaller in scale and differed in quality as well, since it generally lacked the productive growth mentality and the interconnected markets that are so characteristic of most of the world economy today. With regard to the details, however, recent studies are showing that the Finley model does at least need to be revised. As more research is done, it may even be necessary to replace the Finley model altogether in favor of one that fits the evidence better. In the meantime, though, we can still use Finley's model as a basic description while being careful to acknowledge the contradictory evidence provided by recent studies and continuing to investigate the various sectors of the ancient Greek economy at various times and places.

Select Annotated Bibliography

The bibliography on the ancient Greek economy is enormous and it would be counterproductive to list all works here. Therefore, I list only a selection of the essential primary and secondary works, preferring more recent works in English for the sake of students. Further and more specialized works may be found within the bibliographies of the works listed below.

Primary Sources

Literary Works

Many of the literary works listed below are available in the *Loeb Classical Library* and *Penguin Classics* series in English translations.

Aristotle, *Politics* (particularly 1.1258b37-1.1259a5)

In his study of the *polis*, Aristotle devotes this section to modes of acquisition and criticizes what we would call "capitalism."

[Aristotle], *Oikonomikos* (*Economics* - "household management")

Book 2 shows how states obtain revenues. The methods are largely coercive, not productive, such as cornering the market in grain during a famine, debasing coinage, etc.

Demosthenes and [Demosthenes], speeches

Especially useful are several speeches for lawsuits involving economic matters.

Hesiod, *Works and Days*

A poem containing advice and attitudes about farming in the early Archaic period, c 700 B.C.

Homer, *Iliad* and *Odyssey*

Two great epic poems with much information about economic practices at the outset of the Archaic period, c. 800-750 B.C.

Isokrates, speeches (especially *Trapezitikos* and *On the Peace*)

On the Peace argues for economic activity rather than warfare as a means of obtaining revenues for the state. *Trapezitikos* concerns a lawsuit involving trade and banking.

Lysias, speeches (especially *On the Grain Retailers*)

Plato, *Republic* and *Laws*

These two dialogues concern the organization of the *polis*. Although the *Republic* represents the ideal city-state and the *Laws* presents a more realistic picture, both betray an elitist disdain for non-landed economic activities.

Xenophon, *Oikonomikos* (*Economics* - "household management") and *Poroi* (*Revenues*)

Two extended essays on household management and the means by which the state may obtain more revenues, respectively. The latter is one of the most important documents concerning state interests in trade and mining.

[Xenophon] "The Old Oligarch" (or "Constitution of the Athenians")

This is an anonymous mid-fifth-century B.C. political pamphlet that argues that the life-blood of Athenian democracy is the economic exploitation of the so-called "allies" of Athens.

Collections of Primary Sources: Documentary, Epigraphic, and Material

Burstein, S.M. *The Hellenistic Age from the Battle of Ipsos to the Death of Kleopatra VII*. Cambridge: Cambridge University Press, 1985.

A collection of documents, including inscriptions, translated into English.

Fornara, C.W. *From Archaic Times to the End of the Peloponnesian War*, second edition. Cambridge: Cambridge University Press, 1983.

A collection of documents, including inscriptions, translated into English.

Harding, P. *From the End of the Peloponnesian War to the Battle of Ipsus*. Cambridge: Cambridge University Press, 1985.

A collection of documents, including inscriptions, translated into English.

Meijer, F. and O. van Nijf. *Trade, Transport, and Society in the Ancient World*. New York and London: Routledge, 1992.

A sourcebook of documents translated into English.

Thompson, M., O. Mørkholm, and C.M. Kraay, editors. *An Inventory of Greek Coin Hoards*. New York: American Numismatic Society, 1973.

Essential listing of all discovered hoards of ancient Greek coins up to 1973.

Wiedemann, T. *Greek and Roman Slavery*. Baltimore: Johns Hopkins University Press, 1981.

Excellent collection of documents on Greek and Roman slavery translated into English.

Secondary Sources

General Works and Surveys

Austin, M.M. and P. Vidal-Naquet. *Economic and Social History of Ancient Greece*. Berkeley: University of California Press, 1977.

Provides both a survey of the subject and excerpts from the primary sources of evidence. It adheres to the Finley model in general.

Austin, M.M. 1988. "Greek Trade, Industry, and Labor." In *Civilization of the Ancient Mediterranean: Greece and Rome*, volume 2, edited by M. Grant and R. Kitzinger, 723-51. New York: Scribner's.

Often insightful overview of the ancient Greek economy primarily from the Finley perspective.

Cambridge Ancient History (CAH), second edition. Several volumes. Cambridge: Cambridge University Press.

The standard encyclopedia of ancient history with entries on various subjects, including the ancient Greek economy at different periods, by leading scholars.

Finley, M. I. *The Ancient Economy*, second edition. Berkeley: University of California Press. 1985. (Now available in an "Updated Edition" with a foreword by Ian Morris. Berkeley: University of California Press, 1999.)

The most influential book on the subject since its initial publication in 1973. It takes a synchronic approach to the Greek and Roman economies and argues that they cannot be analyzed or understood in terms appropriate for modern economic analysis. In general, the ancient Greek economy was "embedded" in "non-economic" social and political values and institutions. Heavily influenced by Weber, Hasebroek, and Polanyi.

Hasebroek, J. *Trade and Politics in Ancient Greece*. Translated by L.M. Fraser and D.C. MacGregor. Reprint. London, 1933. (Originally published as *Staat und Handel im alten Griechenland* [Tübingen, 1928].)

A classic that greatly influenced Finley.

Hopper, R.J. *Trade and Industry in Classical Greece*. London: Thames and Hudson, 1979.

Survey of various aspects of the ancient Greek economy in the Classical period.

Humphreys, S.C. "Economy and Society in Classical Athens." *Annali della Scuola Normale Superiore di Pisa* 39 (1970):1-26.

An important survey that also argues for focused studies on individual sectors of the ancient Greek economy at particular times and places.

Lowry, S.T. "Recent Literature on Ancient Greek Economic Thought." *Journal of Economic Literature* 17 (1979): 65-86.

Michell, H. *The Economics of Ancient Greece*, second edition. Cambridge: W. Heffer, 1963.

Slightly dated, but useful survey.

Morris, Ian. "The Ancient Economy Twenty Years after *The Ancient Economy*." *Classical Philology* 89 (1994): 351-366.

Excellent survey of new approaches to the study of the ancient Greek and Roman economies since Finley, to whose model the author is generally sympathetic.

Oxford Classical Dictionary (OCD), third revised edition, edited by S. Hornblower and A. Spawforth. Oxford: Oxford University Press, 2003.

Includes brief entries by leading scholars on various aspects of the ancient Greek economy.

Pearson, H.W. "The Secular Debate on Economic Primitivism." In *Trade and Market in the Early Empires*, edited by K. Polanyi, C.M. Arensberg, and H.W. Pearson, 3-11. Glencoe, IL: Free Press, 1957.

A concise statement of the influential ideas of Karl Polyani about the ancient Greek economy.

Rostovtzeff, M. *The Social and Economic History of the Hellenistic World*. Oxford: Oxford University Press, 1941.

Monumental "modernist" approach to a wealth of archaeological evidence about the economy during the Hellenistic period.

Samuel, A.E. *From Athens to Alexandria: Hellenism and Social Goals in Ptolemaic Egypt*. Lovanii, 1983.

A good survey with an important discussion of ancient Greek attitudes toward economic growth.

Starr, C.G. *The Economic and Social Growth of Early Greece, 800-500 B.C.* Oxford: Oxford University Press, 1977.

Modernist survey.

Weber, M. *Economy and Society*. Translated by E. Fischhoff et al. Edited by G. Roth and C.

Wittich. Berkeley: University of California Press, 1968. (Originally published as *Wirtschaft und Gesellschaft* [Tübingen, 1956].)

A classic that greatly influenced Hasebroek and Finley.

Collections

Archibald, Z.H., J. Davies, and G. Oliver. *Hellenistic Economies*. London: Routledge, 2001.

Collection of articles that take the study of the economy in the Hellenistic period beyond Rostovtzeff.

Cartledge, P., E.E. Cohen, and L. Foxhall. *Money, Labour, and Land: Approaches to the Economies of Ancient Greece*. London: Routledge, 2002.

Finley, M.I. *Economy and Society in Ancient Greece*. Edited by B.D. Shaw and R.P. Saller. New York: Viking, 1982.

Garnsey, P. *Non-Slave Labour in the Graeco-Roman World*. Cambridge: Cambridge Philological Society, 1980.

Garnsey, P., K. Hopkins, and C.R. Whittaker. *Trade in the Ancient Economy*. Berkeley: University of California Press, 1983.

A collection of articles along Finley lines.

Mattingly, D.J. and J. Salmon. *Economies beyond Agriculture in the Classical World*. London: Routledge, 2001.

A collection of articles that focuses on the non-agrarian sectors of the ancient Greek and Roman economies with a mind to revising the Finley model.

Meadows, A. and K. Shipton. *Money and Its Uses in the Ancient Greek World*. Oxford: Oxford University Press, 2001.

A collection of articles on the use of money and coinage in ancient Greece.

Parkins, H. and C. Smith. *Trade, Traders, and the Ancient City*. London: Routledge, 1998.

Scheidel, W. and S. von Reden. *The Ancient Economy*. London: Routledge, 2002.

An excellent collection of some of the most important articles on the ancient Greek and Roman economy from the last 30 years with a helpful introduction, notes, and glossary. Especially useful is their "Guide to Further Reading," pp. 272-278.

Specialized Works

Brock, R. "The Labour of Women in Classical Athens." *Classical Quarterly* 44 (1994): 336-346.

Burke, E.M. "The Economy of Athens in the Classical Era: Some Adjustments to the Primitivist Model." *Transactions of the American Philological Association* 122 (1992): 199-226.

A good argument that attempts to adjust the Finley model.

Carradice, I. and M. Price. *Coinage in the Greek World*. London: Seaby, 1988.

A brief, accessible survey.

Cohen, E. E. *Athenian Economy and Society: A Banking Perspective*. Princeton: Princeton University Press, 1992.

A close philological study of the evidence for banking practices in Classical Athens that argues for a disembedded economy with productive credit transactions.

Engen, D.T. *Athenian Trade Policy, 415-307 B.C.: Honors and Privileges for Trade-Related Services*. Ph.D. dissertation, UCLA, 1996. (This dissertation is currently being revised for publication as a book tentatively entitled, *Honor and Profit: Athenian Trade Policy, 415-307 B.C.E.*)

Examines Athenian state honors for those performing services relating to trade and argues for a revision of some aspects of the Finley model.

Engen, D.T. "Trade, Traders, and the Economy of Athens in the Fourth Century B.C.E." In *Prehistory and History: Ethnicity, Class, and Political Economy*, edited by David W. Tandy, 179-202. Montreal: Black Rose, 2001.

Argues for the diversity of those responsible for trade involving Classical Athens.

Engen, D.T. "Ancient Greenbacks: Athenian Owls, the Law of Nikophon, and the Ancient Greek Economy." *Historia*, forthcoming(a).

Argues that the numismatic policies of Athens may indicate a state interest in exports.

Engen, D.T. "Seeing the Forest for the Trees of the Ancient Economy." *Ancient History Bulletin*, forthcoming(b).

A review article of Meadows and Shipton, 2001, and Scheidel and von Reden, 2002, that argues for the mutual compatibility of broad and detailed studies of the ancient Greek and Roman economies.

Finley, M.I. *The World of Odysseus*, revised edition. Harmondsworth: Penguin, 1965.

A brief and highly readable survey of the early Archaic period.

Fisher, N.R.E. *Slavery in Classical Greece*. London: Bristol Classical Press, 1993.

A brief survey.

Garlan, Y. *Slavery in Ancient Greece*, revised edition. Ithaca: Cornell University Press, 1988.

The standard survey of slavery in ancient Greece.

Garnsey, P. *Famine and Food Supply in the Greco-Roman World*. Cambridge: Cambridge University Press, 1988.

Examines private and public strategies to ensure food supplies.

Isager, S. and J.E. Skydsgaard. *Ancient Greek Agriculture: An Introduction*. London: Routledge, 1992.

Kim, H.S. "Archaic Coinage as Evidence for the Use of Money." In *Money and Its Uses in the Ancient Greek World*, edited by A. Meadows and K. Shipton, 7-21. Oxford: Oxford University Press, 2001.

Argues that the existence of large quantities of small-denomination coins from the earliest of coinage in ancient Greece is evidence of the economic use of coinage.

Kraay, C.M. *Archaic and Classical Greek Coins*. Berkeley: University of California Press, 1976.

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Kurke, L. *The Traffic in Praise: Pindar and the Poetics of Social Economy*. Ithaca: Cornell University Press, 1991.

Takes the new cultural history approach to analyzing the poetry of Pindar and how it represents money within the social and political value system of ancient Greece.

Kurke, L. *Coins, Bodies, Games, and Gold: The Politics of Meaning in Archaic Greece*, 1999. Princeton: Princeton University Press.

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Reinforces the Finley model by arguing that lending and borrowing was primarily for consumptive purposes and embedded among traditional communal values in Athens.

Osborne, R. *Classical Landscape with Figures: The Ancient Greek City and Its Countryside*. London: George Philip, 1987.

Explores rural production and exchange within political and religious contexts.

Sallares, R. *The Ecology of the Ancient Greek World*. London: Duckworth, 1991.

Interdisciplinary analysis of a massive amount of information on a wide variety of aspects of the ecology of ancient Greece.

Schaps, David M. *The Invention of Coinage and the Monetization of Ancient Greece*. Ann Arbor: University of Michigan Press, 2004.

Shipton, K. "Money and the Elite in Classical Athens." In *Money and Its Uses in the Ancient Greek World*, edited by A. Meadows and K. Shipton, 129-44. Oxford: Oxford University Press, 2001.

Argues that the elite of Athens preferred leasing high-profit silver mines to public land.

Tandy, D. *Warriors into Traders: The Power of the Market in Early Greece*. Berkeley: University of California Press, 1997.

Traces developments in the economy of the Archaic period and argues that they had an important impact in the formation of the basic social and political institutions of the *polis*.

Von Reden, S. *Exchange in Ancient Greece*. London: Duckworth. 1995.

Employs the methods of new cultural history to argue that exchange in ancient Greece was thoroughly embedded in non-economic social, religious, and political institutions and practices.

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A cultural historical study of the representational uses of coinage in the social, political, and economic life of ancient Greece at the advent of the use of coinage.

White, K.D. *Greek and Roman Technology*. London: Thames and Hudson, 1984.

1 Portions of this article have or will appear in other forms in Engen, 1996, Engen, 2001, Engen, Forthcoming(a), and Engen, Forthcoming(b).

2 This article will not discuss the preceding Mycenaean period (c. 1700-1100 B.C.) and "Dark Age" (c. 1100-776 B.C.E.). During the Mycenaean period, the ancient Greeks had primarily a Near Eastern style palace-controlled, redistributive economy, but this crumbled on account of violent disruptions and population movements, leaving Greece largely in the "dark" and the economy depressed for most of the next 300 years.

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