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THE ROMAN MARKET ECONOMY

Chapter 5

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The Grain Trade

Long-distance trade in the many centuries before the telegraph was beset by information problems. There was the uncertainty present to all when ships set out and people awaited their return with little or no news in the interim. There also was the need to transact business at a distance when information traveled slowly, often by using an imperfectly controlled agent. The problem of finding good agents and providing proper incentives for them has been studied for the early modern world and even occasionally for the medieval world. I extend this exploration back into the ancient world in this chapter, analyzing how Roman merchants dealt with asymmetric information in the centuries surrounding the beginning of the Common Era.

Rome was the largest city before London at the time of the Industrial Revolution as noted earlier. The multitudinous Romans ate a great deal of grain, much of it wheat. This simple fact becomes more surprising when one considers how easily and conveniently Romans could buy that grain. Shipped from distant provinces, the grain changed hands many times before it reached Rome. This trade was organized by the state and private merchants who did not have the benefit of modern means of transportation or communication, and merchants faced high transaction costs from several sources. At times, merchants had to wait weeks to find out if their ships had sunk or if a harvest had wiped out the grain supply in a particular location. The Roman government cleared the Mediterranean of pirates in 67 BCE, completing a process reducing greatly one major source of risk for merchants.

In addition to these problems resulting from incomplete information, merchants in Rome had to rely on potentially corrupt agents—whom they could not monitor—operating in faraway provinces for months at a time. This arrangement created adverse selection and moral hazard problems from the asymmetric information available to merchants and their agents. I reconcile in this chapter the success of the Roman grain market described in chapter 2

with the apparent barriers to that success, arguing that grain merchants used a sophisticated set of institutions to mitigate their information problems.

Roman grain merchants contended with the consequences of highly limited information and of adverse selection and moral hazard, called collectively, principal-agent problems. There were large barriers of distance and time between merchants and their agents, making the coordination of buying and selling difficult to manage. Merchants could not ascertain quickly when the price of grain in Egypt, Africa, or Rome might be high or low, or even if their ship had sunk in a storm. The advent of the telegraph and then the wireless would reduce some of those problems in the nineteenth century, but merchants had dealt with these problems for several millennia before then.

Adverse selection comes about when people have choices whether to participate in an activity. If the nature of the activity attracts undesirable people, then we say there is adverse selection. For example, Adam Smith argued for usury limitations on interest rates on the grounds that only crooks and scoundrels would borrow money at high interest rates. Once people have decided to participate in an activity, they have choices in their actions. If the incentives promote choices injurious to other people, we say there is moral hazard. For example, insurance may cause people to take excessive risks because they know they are insured. Asymmetric information is shorthand for one party to a transaction knowing more than the other. An agent on the spot may know more than the merchant who sent him on a voyage, and this gives him an advantage in making choices we identify as asymmetric information. All of these concepts arise when we discuss the relations of principals who furnish resources or make rules and agents who are asked to act for the principal. They are the ordinary settings for the questions of the New Institutional Economics.

Roman grain merchants, like merchants in other times and places, had to find capable, trustworthy agents under conditions of adverse selection. As Akerlof (1970) explained in his famous "lemons" paper, when the buyer of a good or a service (the merchant in our case) has no clear way of discerning the quality of the good or service itself (the agent), the buyer typically faces an adverse selection of goods. The provider of goods and services (the agent) has an incentive to provide only lower-quality goods, and so the market for that product may even disappear entirely. Stiglitz and Spence, who shared a Nobel Prize in economics for analyzing the effects of adverse selection, both outline modern examples of the screening problems that have become particularly pertinent recently in areas such as the management of American health maintenance organizations (Altman, Cutler, and Zeckhauser 1998).

The merchant-agent relationship also established conditions for moral hazard, a problem closely related to adverse selection. Agents working in distant and therefore unobservable settings could skim profits or steal cargos from

owners with little fear of reprisal. The moral hazard was exacerbated by adverse selection, since the merchants might hire agents with an inclination to cheat. This problem has been mitigated from time immemorial by using family and friends as agents whenever possible. This proclivity to use known agents is pervasive in all societies; only the details change. The Rothschilds succeeded in part because Mayer Amschel had five trustworthy sons, and president of the United States George W. Bush was helped in business by family connections (Ashton 1948; Mathias 1999; Ferguson 1998; Phillips 2004).

Many papers have demonstrated that institutions play a critical role in reducing the costs of these asymmetric and incomplete information problems when family or household connections are not enough. Akerlof (2002) suggested that business institutions such as warranties, brand names, and reputation provide means to reduce the problem of adverse selection because those types of "signaling"—proactive identification of quality or ability—increase the available information. Sixteenth- and seventeenth-century North American merchant groups hired people from within specific families or communities that were already considered trustworthy and promoted people from entry-level positions once their level of ability was clear (Carlos and Nicholas 1990; Jones and Ville 1996). Similarly, Greif argues that the Maghribi Muslim traders in early medieval times depended on a different kind of social signaling—membership in a common religious group—to mark the reputable agents. Genoese traders, on the other hand, relied on the enforcement mechanism inherent in their legal framework to ensure a selection of honest agents (Greif 1994). In general, common ways to reduce moral hazard include paying high wages to raise the costs of being fired for cheating and implementing peer-monitoring institutions (Shapiro and Stiglitz 1984; Arnott and Stiglitz 1991). Early trading companies relied on those monitoring systems and also required agents to take oaths to work solely in the best interests of the company (Carlos 1992).

These studies often take the legal environment as given, but North and others active in the New Institutional Economics have stressed the importance of a functioning legal system. The relations between merchants and agents are simplified greatly if they have contractual relations that are enforceable in a court of law. Trade itself can be done without contracts—purely for cash and only on spot markets—but the ability to write contracts facilitates the expansion of economic activity. Recent papers have questioned the relative advantages of differing legal systems, arguments that are based on the importance of this underlying institution (Beck and Levine 2005; Lamoreau and Rosenthal 2004).

One strand of the New Institutional Economics regards legal rules and other institutional aids to commerce as endogenous, that is, as designed to

make the economy more efficient. We cannot ascribe this degree of rationality to the Roman economy. Some measures, those specific to maritime risks and principal-agent concerns, may have been introduced to facilitate trade. But the bulk of the formal and informal rules and practices of the early Roman Empire grew for other reasons and were adapted to aid commerce. It is this mix of "found" and created measures that makes historical description so interesting.

These information problems were not unique to the Roman merchants. They have troubled merchants throughout history. Eleventh-century Genoese and Muslim traders, joint-stock companies in England and Holland, the Hudson Bay Company, the East India Company, and colonial American traders all struggled with corrupt agents, vast distances, and poor communications (Greif 1989 and 1994; Jones and Ville 1996; Carlos and Nicholas 1990; Price 1989; Bruchey 1966). Such problems remain prominent in today's marketplace as well (Akerlof 1970; Spence 2002; Stiglitz 2002). In order to reduce the transaction costs of these information problems, merchants throughout history have turned to institutions to coordinate, disseminate, and share information. Yet few people have asked how such an institutional strategy was used in the ancient world, despite a growing interest in Roman economic activity.

Roman merchants, like later merchants, used a system of legal, social, and cultural institutions to access otherwise unavailable information, thereby mitigating the effects of potential information problems. They used a mix of specially designed and "found" institutions to help them, and they exploited the information implicit in several well-known social and cultural institutions of Rome. Merchants lessened the threat of adverse selection and moral hazard by using dependents and friends as agents, and through use of a peer-monitored information network, lawsuits, and guilds that were more trustworthy than individuals. Merchants increased their available information about the market through public institutions such as the government's office of the annona and private institutions such as merchant organizations—similar to modern companies in some ways—that shared information and worked closely with each other. Finally, a system of informal and even formal financing options helped reduce the unforeseen risks of trading.

There were many interactions between Roman economic and social structures. Roman institutions reduced transaction costs to at least the level where the grain market, based on long-distance trade, was viable; we can say little else about how much more efficient the institutions made the market. The similarities between these Roman institutions and those created by later merchants are considerable, and many Roman social structures were analogous to later ones. This Roman network of institutions may have been more elaborate and more effective than any other system that arose in the following sixteen hundred years.

The Roman Empire was more urban than most agrarian societies. There were at least half a dozen cities with populations above 100,000 in the Principate, of which Rome was far and away the largest. Roman agriculture must have been quite efficient in order to feed all these urban residents. To feed the Roman metropolis, it was necessary to have extensive food imports in addition to a prosperous local agriculture.

The population of Rome was about a million people. The diet of these residents was based on wheat, olive oil, and wine, supplemented by dry legumes and other locally grown produce. Ancient historians have inferred the average consumption of Roman residents from "subsistence levels" in less-developed countries today. A generous estimate is that each person consumed on average around 300 kg of wheat, for a total Roman consumption of approximately 300 million kilograms a year (Garnsey 1998, 239–45).

The literature about the ancient world is full of speculations about how this economic activity was organized. Modern thought has focused on the informal parts of this system, friendship and patronage, but it increasingly acknowledges that the ancient economy operated primarily on the basis of private markets. It is one thing to say that Cicero transmitted business through people he called his friends; it is quite another to specify how these agents made their decisions or how the many inhabitants of Rome who were not his friends were fed (Verboven 2002). The volume of goods being traded was too large to be dealt with informally, and the government was too small to have administered it directly (Hopkins 1980, 121). These broad generalizations do not specify how individual markets operated.

The government intervened in the wheat market when prices rose too high. The government was distributing wheat in ordinary years to keep the residents content; it also tried to moderate price rises when the supply of wheat was interrupted by harvest failures or shipping disasters. There are many instances when the Roman emperors tried to keep the price of wheat in Rome low, but these interventions were the exception rather than the rule. While we know of many instances, they are spread among even more years (Garnsey 1988, 195–222; Rickman 1980, 150–54; Höbenreich 1997). The forms of these interventions—setting maximum prices, searching for more supplies, subsidizing purchasing—show that they were attempts to control a free market. The frequent mention of grain prices in our sources reveals the existence of a market where prices were variable and important. Roman merchants were operating in relatively free markets with occasional government intervention.

Some of the risks from which the government tried to insulate consumers were risks to merchants as well. Shipping in particular was uncertain. Shipwrecks were common enough that modern historians have used their frequency to estimate the pace of economic activity (Hopkins 1980; Saller 2005). In addition to the uncertainty of knowing whether your ship would come back,

merchants also had to cope with the time that even a successful voyage took. Favorable winds made the trip from Ostia to Alexandria—where much of the wheat for imperial Rome originated—a matter of a few weeks, but the return trip was going against the prevailing winds and could take far longer (Rickman 1980; Casson 1991; Erdkamp 2005). Merchants consequently had to be ready to operate at a distance in the absence of current information. Merchants employed agents for this task and faced the problems that merchants in other times and places have faced.

In order to fully explore the relationship between these merchants and agents, it is necessary to understand the social backgrounds of merchants and agents as well as how those merchants and agents were organized. The social structure and business structure closely parallel one another, and the intimate relationship between them motivates many of the institutional solutions I discuss later.

All the actors in the grain trade hailed from the upper three groups in Roman social hierarchy. The highest group, the senators, included only about six hundred politically active members with a 1,000,000 *sesterces* property qualification. Senators all came from the same homogenous, aristocratic background; they were the major landholders of the empire. In theory, law and custom openly frowned on senators who engaged in business; Cicero, *Att*, 14.12.3, even derided one entrepreneurial senator as a "business hog." Behind this façade of legal restriction many senators were active businessmen. They financed a variety of operations such as vineyards, and many senators held "unregistered" interests in numerous companies and supplied an "important part" of their capital (D'Arms 1981, 54–56). In essence, senators were the—barely—silent partners in Rome's important businesses.

The most visibly active businessmen came from the knights and wealthy freedmen. The knights were the slightly poorer relations of the senators, although some knights were wealthier than some senators. The knights had a 400,000 sesterces property qualification and were more numerous than senators, numbering about five thousand. Senators and knights formed a single class of educated, wealthy men (Jongman 1988). Since they had the leverage of high social standing without the legal and cultural constraints faced by senators, knights could become central figures in business. Below the senators and knights were the privileged freedmen, literally a first generation of educated slaves who either had been manumitted or had purchased their own freedom. Freedmen could sometimes be quite wealthy, owning such properties as mansions, villas, and farms worth more than 50,000 sesterces each (Cicero, *Att.*, 3.196.3; Cicero, *Rosc. Am.*, 133). Freedmen sometimes could reach the rank of knights, and knights could become senators if they were successful in farming, marriage, or business and interested in politics (Hopkins 1983; Alföldy 1988; Garnsey and Saller 1987).

The grain merchants responsible for supplying Rome, who might be senators, knights, or freedmen, worked in Rome and provided capital, contacts, and organization. They hired agents from among the knights or freedmen to go abroad, purchase and sell grain, and oversee its shipping. Knights themselves sometimes functioned as merchants, hiring other knights or freedmen to be their agents. Independent freedmen merchants hired other freedmen as agents. Many studies have identified the nature of these agents and commented on their long-standing ties to their merchant principals, but little attention has been paid to the need to monitor agents, even those identified as friends and relations (Kirschenbaum 1987; Aubert 1994).

While they sometimes acted alone, merchants often were organized into companies. We have few details about those companies, which were almost certainly smaller than modern corporations, but we do know that the group of merchants who had invested in the company met regularly, as do shareholders in modern corporations. Senators often were shareholders who had invested much of the necessary capital for the company. There is evidence showing that at least some Roman companies functioned similarly to the joint-stock companies of the English and the Dutch in the sixteenth and seventeenth centuries (Malmendier 2005, 2009). Those Roman companies obtained a legal identity separate from that of their investors and could exist even after the deaths of important shareholders. The most well-known companies were combinations of *publicani*, or tax farmers. Tax farming was a staple of the Roman Republic, with the auctioning of tax-collection contracts a yearly occurrence. It appears to have been phased out gradually in the early Roman Empire in favor of direct administrative tax collection.

Cato's (Plutarch, *Cato*, 21) famous statement that he would take a one-fiftieth share in a *societas* that operated fifty ships appears to be an example of such a company, but Verboven (2002, 285) insisted to the contrary that "Cato and the 50 traders simply joined hands to minimize the risks involved in the overseas merchant venture. When the journey was over and Cato's loan to finance the venture repaid, the societas would automatically be ended." This statement expands on the source. There is no way to know that this societas "automatically" would be ended, and if fifty ships were involved, many journeys would have to be completed for the societas to end. Merchants and financiers in colonial Massachusetts engaged in continuing shifting partnerships that expired after a voyage, but none of them had anywhere near fifty investors or fifty ships (Bailyn and Bailyn 1959). Unless Plutarch was exaggerating greatly, Cato was doing something far more sophisticated than financing a single merchant voyage.

In most companies, a separation existed between ownership and management. The merchants who owned the company selected executives, called *magistri*, to actually run the company. Badian suggested that companies were

"hollow" in the middle, consisting mostly of capital contributors and top management as well as low-level staff. Most members were "employers" rather than "employees." Operating over extensive areas, some companies even had offices stretching from Arles to Beirut (Sirks 1991, 99). Unfortunately, there are no surviving examples of the company records and reports that must have existed in ancient times.

Individual Roman merchants dealt with problems of information in many ways. Roman law set the stage for all specific measures. Specific maritime practices increased the ability of merchants to monitor agent activity. Merchants also exploited the information derived from the group identification of agents to serve as less formal guarantees. And, finally, merchants relied on the incentives to preserve reputations in order to promote honesty and fair dealing.

If agents were afraid of being punished, they would be less likely to cheat. Rome had a sophisticated legal framework that could enforce judgments, especially fines, against agents who were found to be untrustworthy. A merchant knew that any agent he selected had a lower probability of cheating and could spend less time worrying about discerning the true "trustworthiness" of an agent. Rome had a set of courts for both public and private disputes, as well as justices, lawyers, and government officials who were in charge of enforcement.

Roman law famously lacked a law of agency; contracts in general only bound the contracting parties. Roman jurists, however, understood that provisions for agency operations were needed, and they provided a variety of legal categories in which such contracts were binding. Agents from a merchant's household such as sons and slaves could make binding commitments for a *peculium*, a sum of money designated for the purpose at hand. *Actiones institoriae* and *actiones exercitoriae* allowed ship captains to commit merchants and agents more generally to commit principals. *Actiones adiecticiae qualitatis* provided a legal basis for more complex delegation of authority and responsibility (di Porto 1984; Aubert 1994; Johnston 1999).

For a lighthearted but pertinent example of legal enforcement, we can look at an incident involving a donkey in 4 AD (Wolfe 1952). A merchant had hired an agent to carry goods using donkeys; the agent broke the contract within a year, however, by stealing the merchant's goods and killing one of the donkeys. The merchant then filed a petition for legal redress and damages. The public authority resolved the issue in a way that preserved a record of the broken contract. Any punishment meted out was made more severe by the public nature of the legal system, the proceedings in a large proportion of cases being circulated in writing afterwards.

Private judges were responsible for resolving disputes about private contracts, and Cicero's letters demonstrate that partners in a commercial venture could and did sue one another (Sirks 1991, 29). State cases were judged in more

public courts, and the state had the option of suing all the guarantors of the contract consecutively, an advantage not accorded to private contracts (Meiggs 1973, 29). Thus an agent who violated a contract could expect a fine or other punishment. The public office of the annona, which acted as merchant and contracted with its own agents to import government grain, also could punish corrupt agents. That office could and did refuse to deal with whomever it wanted, denying them government accounts forever (Sirks 1991, 91).

In addition to directly refusing contracts, the office of the annona investigated merchants who attempted to defraud the government. For instance, once the Emperor Claudius introduced a plan to increase the rewards for merchants involved in the annona, merchants gained an incentive to claim that they were participating in that plan even if they were not. Some shippers simply claimed that they had built ships for the annona, but then they either used the ships for other purposes or never built them at all (Garnsey 1988, 234). The office of the Prefect employed at least one person in Ostia to investigate such claims. Identification and punishment of those "phantom shippers" provided information for agents and merchants that they might not be able to ascertain themselves.

While the courts and the government helped to protect against moral hazard, there were both public and private formal institutions that helped combat woefully incomplete information. The Prefect of the annona had the power to issue contracts for the provision of state grain, as mentioned above, and his office in Ostia was surrounded by the offices of private merchants. The Prefect appears to have engaged only a small staff, suggesting that his main tasks were to gather information about the grain trade and to coordinate with important merchants rather than to organize the entire market (Sirks 1991, 14).

The Prefect's office therefore may have functioned as an information-clearing house. Because the Prefect of the annona dealt with many merchants, he was privy to information from each of them, either through official discussion or through casual conversation. The issuing of certain public contracts could signal private merchants about expected prices and fluctuations in the market, as well as about shortages or surpluses in areas in which they did not normally deal. In essence, this information distribution is similar to speeches given today by individuals like the chairman of the U.S. Federal Reserve Board, who, with a massive amount of economic information, take actions that signal market conditions to private businessmen. Industry associations perform similar functions.

Although merchants could not collectively concentrate their information in one place, as did the Prefect's office, they could still develop private, formal networks to share that information. The Roman "company" was a sophisticated information-sharing institution. Companies kept copies (or originals) of

letters sent by their agents, so they presumably had the ability to trace pricing and quantity trends over time, as well as to compare older contracts with newer ones (Badian 1983, 78). Some companies had physical offices in multiple provinces, an arrangement that suggests further information-gathering capabilities. The group of top managers could pass information easily among themselves, since different companies were owned or controlled by men from the same social circles. They might have discussed minutiae like the spot price of wheat in this farm versus that one, and more important, it does not seem unreasonable to imagine them sharing information about employees, profits, and ships through their many social interactions.

Another way grain merchants limited risk was through private financing, just as more recent long-distance traders do (see chapter 8; Rathbone 2001, 2003b). Athenian merchants in the fourth century BCE used loans to finance maritime trade that did not have to be repaid if a ship was wrecked (Cohen 1992). Roman financing followed the same model, and merchants and shippers were able to borrow conditional on a safe return. The interest rate charged was higher than usual and not subject to the normal limitation of 1 percent per month in an explicit acknowledgement that the payment included both interest and insurance: "Money lent on maritime loans (*traiecticia pecunia*) can bear interest at any rate because it is at the risk of the lender as long as the voyage lasts" (de Ste. Croix 1974, quoting Paulus, *Sent*. II, xiv, 3; Johnston 1999). Rathbone (2001) argued that maritime loans were common enough to warrant a standard loan contract, and contemporary Roman commentators discussed market interest rates for such loans (see chapter 8). Rathbone concluded that a particularly large amount of financing occurred during the first and second centuries CE, precisely the time period in which the operations of these grain merchants were at their height. The existence of this financing is particularly substantial if there was little or no government control over the grain trade. Merchants had to bear the risks privately.

While formal, legal institutions like the court system and Roman companies helped combat both asymmetric and incomplete information, other formal institutions, while not codified under law, increased the ability of merchants to monitor agent activity. Just as the legal enforcement of contracts raised the cost to an agent of being caught, a complicated system of documentation increased the agent's risk of being caught. These documents all provided information about the owner, amount, and quality of grain to third parties, either another agent purchasing the grain from an agent or a port official. This elaborate peer-monitoring system helped to ensure that, though an agent could cheat or steal on a long voyage or in a distant land, he would be exposed once he returned.

The problems of agency arose in gathering both public and private supplies

of wheat. The public administration used a system of receipts to record important information about grain cargoes that were available for merchants buying grain or by other third parties. The following receipt, issued in 211 CE, is representative (Rickman 1980, 121–22):

> Given to Didymus, strategos of the Oxyrhynchite nome, by Posidonius also called Triadelphus, master of eight boats carrying 40,000 artabae in the Neapolis administration, I have received and had measured out to me the amount ordered by you the strategos and by basilicogrammateus of the same nome, from the sitologoi of the Psobthis district, in accordance with the order of his excellency the procurator Neaspoleos, from the public granaries of the said village at river Tomis, [a specified amount of] wheat, produce of the [year] specified, unadulterated, with no admixture of earth or barley, untrodden and sifted, which I will carry to Alexandria and deliver to the officials of the administration safely, free of all risk, and damage by ship. This receipt is valid, there being three copies of it, which I have issued two to you the strategos and one to the sitologoi.

The receipt identified to whom the cargo belonged and to whom it was being shipped. It also explained specific attributes of the grain, such as the year of harvest and the quality of the product. By identifying its attributes, the receipt made the grain more difficult to steal.

This receipt also suggests the complexity of the system of documentation that Roman officials and merchants used. Receipts existed in triplicate and were sent to different offices providing evidence for a system of quasi-permanent record-keeping. Sending two copies of the receipt to the same person is even stronger evidence for permanent records, since there could be few other reasons for duplicates. The statement "this receipt is valid" implies that there was some legal or understood code of conduct in which three receipts were required in order to make a transaction valid. Since no record exists in documents concerning Roman trade law about such a requirement, merchants may have taken it upon themselves to create such a system of receipts. Not surprisingly, there are even reports that businesses kept archives with letters and other documents, although no records remain of the archived documents (Badian 1983, 72–73). Other evidence stresses the critical importance of receipts to merchants.

Several documents tell of ship crews who waited for as long as fifteen days, often in the middle of prime sailing season, for a receipt of the cargo to be issued in Ostia (Sirks 1991, 43, 156). It is unlikely that the crews would have waited for a receipt if it were not an indispensable part of conducting business. The captain of each ship involved in government shipping also was given a document attesting to the quality of that grain; he had to surrender that receipt

to the Prefect of the annona at Ostia on his arrival. Ship captains must have carried additional information, since a ship arriving at Ostia or Portus had to present identification papers to be assigned a berth by the harbormaster (Casson 1965).

In addition to the straightforward receipts discussed above, merchants used even more clever alternatives, such as the labeling of cargo, to assist them in controlling the behavior of agents. A particularly ingenious form of "receipt" involved separate sample containers. Throughout the late republic and early empire, grain merchants sent sealed pots or pouches containing a sample of the grain cargo on trading ships. When the cargo arrived at its destination, the recipient could open the sealed container and test the grain held in it against the grain in the ship's main hold; any difference suggested that the bulk of the grain had been doctored in some way. These seals were signed by the granary official and a merchant, with an additional signature from a witness (Rickman 1980, 122). Such a safeguard against fraud made it extremely difficult for an agent to "cut" his grain with barley or dirt in order to increase the size of his sale. This procedure was doubly valuable, ensuring that the merchant who was ultimately selling the grain would not be embarrassed by a wayward agent and that the merchant ultimately purchasing the grain would not be defrauded. The Bank of England mandated roughly seventeen hundred years later "that every Teller receiving money shall immediately weigh the same, and put a Ticket on the Mouth of the Bag importing the weight and contents thereof, and the like Ticket also within the Bag."

Other simple tricks helped raise the cost of moral hazard. For instance, when grain was poured directly into a hold rather than into sacks, merchants could draw a line on the inside of the hold to mark the height of the grain when it was loaded (Sirks 1991, 100). Indirect, comparative evidence of other product labeling bolstered the practices's viability. Wine merchants labeled their *amphorae* to identify both the contents of the jug and its owner and sometimes a great deal more. One intact pot contained the following label (Frank 1933–40, 72):

> Received; Hispalis; value 20 sest.; weight 215 lbs.; from estate of Capito; export duty: 2 asses; name of clerk; consular date. (AD 179)

Grain was carried in sacks, not in amphorae, and, though no sacks have survived, it would not have been difficult to label sacks with paint, or even colored thread to signal the merchants, the quality of grain, or other pertinent information.

The guild system, especially in Ostia, provided another institutional barrier against moral hazard. Since each transaction involving grain increased an agent's opportunities to cheat, merchants sought to limit the amount of

exposure their agents had to the grain with which they were entrusted. The existence of a developed guild system in Ostia and other ports made it unnecessary for agents to perform certain functions, such as unloading the ships, storing the grain, and bringing it from Ostia to Rome. Merchants preferred that guilds perform these tasks, because the guilds already had internal checks against moral hazard—guild members came prescreened.

There were at least four Ostian guilds that directly concerned the grain merchants: the sack-carriers, similar to longshoremen, unloaded grain from ships; the grain measurers weighed the government's grain upon arrival and departure; the shippers who owned small boats that they used to carry grain to Rome, and they may also have checked an incoming ship's documentation; the barge-men guided barges full of grain that were pulled by oxen to Rome. There was even a guild of divers who recovered cargo that fell into the water (Sirks 1991; Meiggs 1973).

To understand how guilds could be tightly controlled, it is useful to review the inner workings of the guilds. While guilds were formal organizations of men tied together by a common occupation, they differed from the European craft guilds of the Middle Ages and early modern period. Many Roman guilds, such as the sack-carriers, or longshoremen, did not require mastery of a specific artisanal skill; their work was unskilled. The guilds of skilled workers focused more on cerebral tasks like piloting ships. All guilds allowed their members to compete freely with each other, and nonguild workers could also find employment in tasks normally performed by guild members. There were significant benefits to membership, as we shall see, although there is no evidence that guilds acted as unions to control wages.

Guilds could prevent crime because they functioned as self-enforcing cartels; a guild could easily refuse membership and its benefits to an outsider or punish active members who stole or behaved corruptly. Elections ultimately determined guild membership, although some guilds required an entry fee in addition. Some guilds, such as the public grain-measurers, forced new members to "take a valid oath to do honest work" (Frank 1933–40, V, 247–49). The guild members collectively elected officers and managed business operations. Those officers held terms of between two and five years, depending on the guild. While membership was not a hereditary right, sons often followed fathers into the same guilds, and freedmen similarly followed the families from which they had won their freedom and now considered their patrons (Meiggs 1973, 316–23). It is unclear how many members each guild had; Casson (1954) reports that sizes ranged from 19 to 250.

The strong organization of the guild and its ability to exert collective action made guild membership desirable. Guilds often pooled resources, and most guilds had guild houses stocked with gifts and decorations given by members. Many also had their own temples, while others used their resources to engage

in civic life. The measurers, for instance, were one of the guilds who erected statues to the Prefects of the annona. Guilds also elected "patrons," men of varying influence and wealth, giving members access to those men. Less powerful guilds invited reputable local men to be their patrons; more significant guilds, like the shippers, included a handful of senators on their list of patrons. A guild member would not lightly throw away such positive social benefits (Meiggs 1973, 316, 324; Sirks 1991, 261).

Guilds must have monitored their members' behavior closely. The common treasury would have produced a strong interest in members to monitor one another. More important, the reputation of the entire guild could have suffered from the bad acts of one of its members. Even if corrupt members were not expelled, it is unlikely that they would ever have been voted into officer status or given special honors by their peers.

Legal systems, and other formal organizations do not exist in a vacuum; it is often informal social custom that proves even more effective than official sanctions (Milgrom, North, and Weingast 1997). Merchants relied on informal institutions to promote honesty and trustworthiness. The guarantee of reputation is the most likely candidate for the unofficial enforcement mechanism in Rome. This *ex-ante* solution would have prescreened the agents available to the merchants.

If the Romans used a reputation mechanism, what was the signal that established trustworthiness? Roman religion did not involve an ethical code, as is present in Judaism, Christianity, and Islam, so an appeal to religious values could not ensure trustworthiness. Instead, it seems plausible that the criterion for establishing trustworthiness was the recommendation of another merchant knight or senator, especially given the homogeneity of the two primary classes of senators and knights and the close proximity in which merchants worked in Ostia, as we shall see later. In addition, honor and probity were important secular values among the Roman aristocracy; men of these higher ranks were considered to be de facto trustworthy and could explicitly lend that trustworthiness to others. Naturally, not all members of these classes were trustworthy, but the small, close-knit community ensured that a deviant individual could not hide behind his rank indefinitely.

A letter from Cicero (*Fam.*, 13.75) provides evidence of this reputation mechanism. In the letter, Cicero, a wealthy senator, writes to a merchant principal, Titus, about an agent, Avianius. Avianius worked for Pompey, one of Cicero's friends and also a merchant principal:

> What I beg of you is this—that you would accommodate Avianius as to the place and time for landing his corn: for which he obtained by my influence a three years' license whilst Pompey was at the head of that business.

This letter contains two instances of the reputation mechanism. First, Cicero clearly used his social ties to Pompey, another merchant principal and member of the senatorial circle, to secure Avianius a contract in the first place. Second, Cicero, with his personal reputation, persuades Titus to give Avianius a favorable reception. Cicero's letter "brands" Avianius as a trustworthy agent, just as a personal endorsement from a standing president might brand a candidate "honest" or "trustworthy."

The use of the same agent by multiple senators strengthened the reputation mechanism. Since some agents worked for several wealthy families, information about their reputations could travel particularly rapidly. Cicero (*Cornelius Nepos*, 25.15) gives an example of this phenomenon by writing about Atticus, his own agent as well as the agent for four other aristocratic families, including that of Marc Antony.

While the aristocratic ownership of Roman companies bolstered the reputation mechanism through their personal communications, the companies themselves helped minimize the damage a dishonest agent could cause. At least some merchant groups offered to replace a failing agent with another one. Associations even used their own property as collateral to guarantee fulfillment of a contract and threatened their own criminal members with fines or prosecution for criminal activity (Garnsey 1998, 77). These pledges were not legally binding, but they did control anyone who wished to remain part of an association.

If an agent were caught cheating, the costs could be high. Through a straightforward procedure, a private merchant could simply end his contract with an agent who cheated. The government could also refuse to work with cheating agents in the future. The reputation-based enforcement mechanism would ensure that any agent who had been fired would be unlikely to find any work whatsoever. The legal framework that helped create more trustworthy agents also increased the chance that cheating agents would be punished if caught.

Informal Roman institutions also proved useful in addressing problems of incomplete information. Merchants typically came from the same elite social groups, and their informal relations supported and aided their commercial transactions. Various authors have presented an economy of friends as a substitute for a more formal market, but in fact they are complements. As noted earlier, families, extended households of slaves and freedmen, and friends were used to reduce the extent of adverse selection. They also conveyed information that reduced the opportunity for moral hazard. Kirschenbaum (1987, 180) concluded, "These were relations that never reached the inside of a courtroom. Their entire tone precludes contract and suit, action and liability; yet they were most effective in fulfilling the roles and needs lawyers associate with agency."

Verboven (2002, 351) added, "Little of what we have found can be considered unique for the Roman Economy."

Given the level of communications technology, no one had access to all the information about the grain trade. Because numerous people had access to different pieces of information, merchants participated in institutions that helped share or diffuse information. This information sharing evolved in two ways: merchants collectively sought information from a public source, the government's Prefect of the annona; merchants could also acquire information privately from other merchants. In addition, those private merchants could also reduce the risks of incomplete information through a system of financing that was surprisingly modern in several ways.

A second way for merchants to more efficiently spread information was to work physically near each other. Knowing each other, seeing each other each day, and gossiping together would undoubtedly increase the information flow between the merchants. The Piazzale delle Corporazioni was the primary physical institution for grain information exchange in Ostia (Meiggs 1973, 284–88). The building, decorated with mosaics including many depicting grain ships, is located near the harbor and housed numerous types of merchants in a colonnade surrounded by many small offices. Such a space lent itself to the casual communication between merchants.

With no indication that the Prefect of the annona ordered any of these merchants to establish their offices in the Piazzale, it appears that merchants came there deliberately to coordinate among themselves (Meiggs 1973, 283). There were no offices in the Piazzale large enough to hold goods, further suggesting that these offices existed so that representatives could place orders and negotiate. Larger shippers certainly had agents who either had an office in the Piazzale or frequented the space at a minimum. Wine merchants enjoyed a similar arrangement in the Forum Vinarium, where wine merchants from Rome and from Ostia worked side-by-side. This open-air, public coordination could also be found among the Maghribi traders. Greif (1994, 923–24) reports that their "important business dealings were conducted in public."

Merchants could use both public and private institutions to overcome problems of inadequate information. The Prefect of the annona may have served as an information clearinghouse about the grain market, while private merchants shared information through their company ties and the proximity of their offices.

While asymmetric information remains a major problem in the modern economy, lack of information has become a decreasing concern as improvements in technology have built stronger communication networks. Incomplete information posed a serious problem for merchants until the nineteenth century. One strategy earlier merchants used to reduce the effect of their poor

information was to place total control for an operation in the hands of agents. For instance, some traders in the colonial America gave their agents a broad set of general orders and hoped they would be followed. In November 1736, Captain James Brown wrote the following to one of his agents (Bruchey 1966, 176):

> If you can Sell your pitch, rice, & Turpentine for a good price in money Sell it all but Twenty barrels of pitch and two barrels of Rice and two ditto of Turpentine, which I Shall want for my own Youse [*sic*]. And if you Cannot Sell it to your Satisfaction Schooner and all together if you can find any room take a hundred bushels of Salt of Capt. Whipple or any body else that you can get it Cheapest off, and make what dispatch possible you can home.

Rather than attempt to increase the information available to the merchants, the strategy exemplified by this letter works by placing complete responsibility for the operation in the agent's hands. This is an extreme example in which the merchant acknowledged that he could not control his agent and hoped for the best. Roman merchants, facing similar asymmetric and incomplete information problems, employed all sorts of formal and informal institutions to avoid being forced to rely solely on the good offices of their agents.

Roman grain merchants faced asymmetric and incomplete information concerns, contending with the selection and monitoring of agents, as well as incomplete information about price shocks, shipwrecks, and other conditions. Merchants used economic and social institutions to reduce the transaction costs resulting from their uncertainty. Those institutions increased the amount of available information and reduced its cost. Some institutions, such as early banks, could help reduce the risks of incomplete information, even if they did not create or provide additional information themselves. This analysis suggests that the Roman market rivaled early modern European and colonial American markets in terms of institutional complexity and, perhaps, efficiency. Greif assumed that medieval merchant groups had to choose between two types of institutions to increase information about agents: they could develop either an enforcement-based mechanism or a reputation-based mechanism, depending on the institutions that already existed in their society. Unlike the groups of traders in Greif's paper about eleventh-century merchants, the Romans utilized both methods. Even without systematic comparisons to other informational systems, it is apparent that Roman merchants in the early Roman Empire had a system that was as good as any existing before industrialization and perhaps not equaled for another millennium and a half.

Chapter 6

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The Labor Market

It often is said that ancient Rome was a slave society. Hopkins (1978) was the first to assert that Rome was one of only five slave societies in recorded history, a view adopted quickly by Finley (1980). This characterization is important because slavery is used as a sign of a nonmarket economy. Polanyi (1944) located the center of the transition to an industrial economy in the labor market. He argued that labor markets in the modern sense did not exist before the Industrial Revolution and the Poor Laws that accompanied it in England. This view is consonant with Weber's (1930) judgment that a critical component of capitalism was free labor.

Finley, and others following his lead, argued that ancient economies were not market economies, but an alternate, even primitive, form of organization. Finley (1980, 68) stated, "In early societies, free hired labour (though widely documented) was spasmodic, casual, marginal." According to Hopkins (1978, 23), "There was no effective labour market of mobile, landless labourers," in the early Roman Republic. Hopkins (1978, 109) argued that this condition continued into the early Roman Empire: "Slaves were . . . a means of organizing labour in an economy without a labour market."

In his "Further Thoughts" to his Sather Lectures, Finley (1999, 185) reaffirmed his positions that "free hired labor was casual and seasonal" and that "there was no genuine competition . . . between slave and free laborers." He said these positions were "still valid" although needing "nuancing." Following Brunt (1980), Finley acknowledged abundant free laborers in the largest cities, but he insisted that their employment was "strictly speaking casual."

This view is mistaken. A variety of evidence indicates that Rome had a functioning labor market and a unified labor force. Wage dispersion in the early Roman Empire, to the extent that we know it, is indistinguishable from that in preindustrial Europe. Roman labor contracts have a distinctly modern

allocation of risks and rewards. In addition, Roman slavery was so different from modern slavery that it did not indicate the presence of nonmarket, traditional actions. Instead, ancient Roman slavery was an integral part of a labor force that shares many characteristics with labor forces in other advanced agricultural societies. Contrary to Finley (1980, 127), who asserted, "Ancient slavery . . . co-existed with other forms of dependent labour, not with free wage-labour," and Schiavone (2000, 156), who added that "slavery . . . led to the eventual stagnation of the [Roman economic] system, blocking off other paths," the analysis in this chapter finds that free hired labor was widespread and that ancient slavery was a part of a unified labor force in the early Roman Empire, not a barrier to economic progress.

A functioning labor market couples a labor demand with a labor supply. Two conditions must be filled, at least partially: workers must be free to change their economic activity and/or their location, and they must be paid something commensurate with their labor productivity to indicate to them which kind of work to choose. Labor productivity here means the output of goods or services that results from the employment of this worker. It is not the average labor productivity of all workers, but the productivity of the worker in question. In economics jargon, it is the marginal product of labor. Contemporary studies maintain that labor needs to be mobile enough to bring wages for work of equal skill near equality. Though this stipulation does not mean that everyone has to change jobs with great frequency, enough people must be able and willing to do so to keep payments to labor from being excessively higher or lower than the wages of comparable work in other locations or activities. Even in the United States today, which contains the most flexible labor market in history, wages for comparable jobs are not completely equalized: "There exist sizable wage differences across regions or states in the United States, even for workers with particular skills looking for similar jobs" (Borjas 2001, 71).

When these conditions are not fulfilled, there is no labor market, or perhaps only local, isolated labor markets. People might not be able to change their economic activities due to hereditary or guild restrictions. They might be restricted in what they can earn or be entitled to income for reasons unrelated to their work. Wages, in the sense of a return for labor services might be "spasmodic, casual, marginal." The choice between these two alternatives is important because the nature of the labor market is an important component to the nature of the economy as a whole. With a functioning labor market, an economy can respond to external influences like market economies do today. Labor can move to take an advantage of a technical change that makes an activity more profitable or a discovery that provides an economic opportunity in a new place. In a local, nonlabor market, labor would not be able to

respond to changes in the external environment. The economy instead would continue to act in traditional ways, perhaps with a small gesture toward the new opportunities.

The task of distinguishing these two conditions in the early Roman Empire is rendered difficult, as always, by the absence of comprehensive evidence. The chief evidence for the absence of a labor market in the early Roman Empire has been the presence of slaves. The question is not how many slaves were present, but rather how slavery operated. Slaves in the American South before the Civil War were not part of a unified American labor market because their activities and incomes were so restricted that they had no incentive to seek better working conditions. Slaves in the early Roman Empire did not suffer under the same restrictions, but despite Rome's use of slavery, free hired labor was the rule, not the exception, in the rest of the early Roman Empire.

The abstract conditions that define a labor market typically are related to labor markets in industrial economies; they need modification to apply to labor markets in agricultural economies. Most of the workers in such an economy are rural, working either in agriculture or in associated crafts and services; they rarely change occupations or residences without strong pressure. A rural labor market exists when enough of them are free to move in response to economic stimuli, thereby keeping rural wages at a moderately uniform level but also allowing for substantial geographical variation in both the level and the rate of change of rural wages. For example, migration and wages interacted in early modern Britain to keep wages similar, but by no means equal.

One possible move for a substantial fraction of rural workers in advanced agricultural economies is to a city. It is rare, both in past and current agricultural economies, for rural and urban wages to be equalized by migration. Economists do not regard this discrepancy as negating the existence of a unified labor market; they explain the difference by noting that new urban workers often are unemployed and that only the expected wage (that is, the wage times the probability of earning it) should be equalized by migration. Living costs also typically are higher in cities; urban wages can exceed rural wages for this reason alone. Urban wages that are double rural wages do not strain the ability of these factors to account for the discrepancy (Harris and Todaro 1970).

Wages vary in a labor market by skill as well as by location. Almost all workers have skills, basic skills of agriculture and often more advanced skills as well. Economists call these skills human capital. Most ancient workers had few skills, including the ability to read, that is, little human capital. Craftsmen and some agricultural workers had competencies that did not depend on literacy and would receive a higher wage in a rural labor market for them. But these skills would not earn much, if anything, in urban areas. Although we tend to know more about literate workers—despite the relative paucity of them—than

about less-skilled workers because of the literary bias of our sources, the great mass of workers in the early Roman Empire were illiterate and—by modern standards—unskilled (Harris 1989a).

Recent scholarship has revealed the existence of many market prices and wages in ancient Rome, suggesting that the Roman economy was not substantially different from more recent agrarian economies. Yet the abstract conditions that define a labor market in modern analyses need modification to apply to labor markets in agricultural economies. Steinfeld (1991) demonstrated that workers were not free to change jobs at will until near the end of the nineteenth century. Even in the United States and Britain, two of the most market-oriented countries that the world has ever known, the rights of workers were sharply restricted. Both urban and rural workers were subject to prosecution if they left a job without their employers' permission. Steinfeld (1991, 26) argued that work in these advanced economies was directed by a mixture of monetary and other incentives. This context permits no sharp distinction between free and unfree labor, only a continuum along which various economies, or even activities within an economy, can be placed. In his words, "Practically all labor is elicited by confronting workers with a choice between work and a set of more or less disagreeable alternatives to work."

Steinfeld (2001, 8–9) elaborated this framework in a subsequent book:

> We should recognize that employers of all forms of labor confronted certain basic problems that derived from the ability of workers to thwart their economic objectives and that employers of all forms of labor, *including wage labor*, found nonpecuniary pressures useful in trying to deal with these problems. What was different about the different forms of labor was the harshness and comprehensiveness the state permitted employers to bring to dear. . . . As vast as these differences undoubtedly were, they should be understood as establishing the terms of labor along a very broad continuum rather than a binary opposition. . . . English wage workers [before 1875] could be imprisoned at hard labor for failing or refusing to perform their labor agreements.

Steinfeld's analysis of English-speaking workers in the process of industrialization provides a standard against which to evaluate Roman labor markets. Wages were an important tool for the allocation of labor in eighteenth-century England, but their use was limited by the restrictions on labor mobility. Wages in such a system would not reach equality for similar skills, and most workers would not feel free to look around for more lucrative activity. Slaves were part of this continuum of flexibility and restraint, as will be demonstrated shortly.

Free urban workers in the early Roman Empire were paid for their work and were able to change their economic activities. Hereditary barriers were

nonexistent, and Roman guilds do not appear to have been restrictive (see chapter 5). Workers in large enterprises, like mines and galleys, were paid wages, as in more modern labor markets. Workers engaged in more skilled and complex tasks received more elaborate compensation, probably for long units of time than those doing wage labor, again as in more modern labor markets, even though explicit long-term contracts were not yet established. The force of competition under those circumstances probably brought wages and labor productivity into the same ballpark (Frank 1933–40, V, 248–52; Meiggs 1973, 314).

Some of the work in the early Roman Empire was done for wages and some under the duress of slavery. The early Roman Empire even had salaried long-term free workers in Egypt. Craftsmen sold their wares in cities and also supplied them to rural and urban patrons in return for long-term economic and social support. Similarly, people who worked for, or supplied, senators and equestrians often worked for long-term rewards and advancement. The episodic nature of monumental building in Rome, accomplished largely by free laborers, gives evidence of a mobile labor force that could be diverted from one activity to another. Free workers, freedmen, and slaves worked in all kinds of activities; contemporaries saw the ranges of jobs and of freedom as separate—even orthogonal. In particular, rural slaves hardly comprised an undifferentiated gang of laborers; lists of rural slave jobs are as varied as the known range of urban or household "slave" jobs. Some rural laborers received piece rates and others, daily wages. Cicero, anticipating Marx, conflated legal and economic relations by equating wages and servitude (Rathbone 1991, 91–147, 166; Brunt 1980; Cicero, *de Officiis*, XXI, 1.150–51).

A labor market in the early Roman Empire would have tended to equalize real wages in different parts of the empire. Suggestively, Cuvigny (1996) found equal wages of miners in Egypt and Dacia in Eastern Europe. Either an administrator imposed uniform wages across the empire or scraps of data like this provide evidence of a well-functioning labor market. The combination, perhaps even their interaction, may have integrated conditions across the broad Mediterranean area described in chapter 2.

In a functioning labor market, wages increase as the number of laborers decreases because of the competition to hire them; workers are more productive when fewer of them are available to work. It is hard to know of small changes in Roman labor supplies, but plagues led to rapid, large falls in the pool of available labor. Egyptian wages doubled after the major Antonine Plague of 165–175 CE. This clearly is the standard labor-market response to a sharp decrease in the supply of labor. It demonstrates that wages in the early Roman Empire moved to clear markets, in this case to allocate newly scarce labor (Duncan-Jones 1996; Scheidel 2002).

Employment contracts also give evidence of labor-market activity in which workers could choose their jobs. The modern division between wages and salaries finds it analog in Roman Egypt: "As a general rule permanent employees of the Appianus and related estates can be distinguished by their receipt of *opsonion* (salary), a fixed monthly allowance of cash and wheat and sometimes vegetable oil, whereas occasional employees received *misthos*, that is 'wages.'" Some of these "free" workers were tied to the estate for life, like those subject to the more modern worker contracts studied by Steinfeld, but others were free to leave when their jobs were done (Rathbone 1991, 91–92).

Miners and apprentices had employment contracts. One dating from 164 CE shows that workers were paid only for work done and that they had more right to quit than the nineteenth-century workers described by Steinfeld:

> In the consulship of Macrinus and Celsus, May 20. I, Flavius Secundinus, at the request of Memmius, son of Asceplius, have here recorded the fact that he declared that he had let, and he did in fact let, his labor in the gold mine to Aurelius Adjutor from this day to November 13 next for seventy denarii and board. He shall be entitled to receive his wages in installments. He shall be required to render healthy and vigorous labor to the above-mentioned employer. If he wants to quit or stop working against the employer's wishes, he shall have to pay five sesterces for each day, deducted from his total wages. If a flood hinders operations, he shall be required to prorate accordingly. If the employer delays payment of the wage when the time is up, he shall be subject to the same penalty after three days of grace. (CIL III, p. 948 no. 10, translated in Lewis and Reinhold, 1990, 2, 106–7)

Most free workers were farmers, many of them tenant farmers, although employment categories in the countryside were fluid (Garnsey 1998, 139; Kehoe 1997). Roman tenancy contracts allocated risks between landowners and tenants in much the same way as analogous contracts did in eighteenth- and nineteenth-century Britain. Major risks were borne by the landowners as events beyond the tenants' control, whereas minor risks were borne by tenants in return for the opportunity to earn more and keep their earnings: "Force majeure ought not cause loss to the tenant, if the crops have been damaged beyond what is sustainable. But the tenant ought to bear loss which is moderate with equanimity, just as he does not have to give up profits which are immoderate. It will be obvious that we are speaking here of the tenant who pays rent in money; for a share-cropper (*partiarus colonus*) shares loss and profit with the landlord, as it were by law of partnership" (Gaius, *D*. 19.2.25.6, quoted in David Johnston 1999, 64).

We know a lot more about wages in England before industrialization than in the Roman Empire. Wages for comparable work were similar throughout England, but they were not uniform. Agriculture was more prosperous in the South than in the North, and wages were higher in the eighteenth century. (This pattern was reversed in the nineteenth century when the North industrialized.) Substantial variation was evident within regions, due to the immobility of the population. A recent summary of the English data shows daily winter wages in the North to be only half of what they were in the South in 1700. They approached each other gradually during the next century and a half (Woodward 1995; Clark 2001, 485).

England is much smaller than the Roman Empire was. If we use Roman data from Egypt and Davia, a more suitable comparison is preindustrial Europe. Clearly, labor had even less mobility between countries than within England, and wages varied more, though they did remain at the same general level. Allen (2001) demonstrated that wages within Europe began to diverge in the sixteenth and seventeenth centuries. By 1700, the real wages of masons in London and Antwerp were more than double those in other European cities.

Based on this more modern evidence, we do not expect to find wages that are equal in distant places except by coincidence, but we expect wages to be similar. If the early Roman Empire had a labor market that functioned about as well as the labor market in preindustrial Europe, then wages in the early Roman Empire would have been approximately equal. Real wages for similar tasks might have varied by a factor of two or three, as real wages did in eighteenth-century Europe, but they were not different orders of magnitude. As just described, this presumption is consistent with the fragmentary evidence about wages in the Principate.

The army must be distinguished from the private sphere, as in modern economies. Peacetime armies are often voluntary, recruited via the standard organizational lures—favorable wages and working conditions. Wartime armies, by contrast, often rely on conscription, which is a nonmarket process. Actions within armies are directed by commands, not by market transactions. Armies therefore represent at best a partial approximation to a free labor market and typically an exception to it. Since armies, unhappily, are present in almost all societies, we place this exception to the general rule to one side.

The wages of the Roman army, which was staffed by a mixture of attraction and conscription, stayed constant for many decades at a time. When the army was not fighting, which was most of the time, soldiers had to be set tasks to keep them fit and out of trouble, like building roads and public monuments. This construction work did not interfere with the labor market in Rome or elsewhere in the center of the empire since the army was stationed at the frontiers (Brunt 1974; Watson 1969, 45).

Slaves appear to be like soldiers in that they are subject to command, but such was not necessarily the case in the early Roman Empire, especially in cities. Unlike American slaves, Roman slaves were able to participate in the labor market in almost the same way as free laborers. Although they often started at a low point, particularly those who were uneducated, many were able to advance by merit. Freedmen started from a better position, and their ability to progress was almost limitless, despite some prominent restrictions. These conditions created powerful positive work incentives for slaves in the early Roman Empire.

The prevalence of slavery in ancient Rome has stood in the way of comparisons with more recent labor markets since it seemed to indicate that a large segment of the Roman labor force was outside the market. Classicists have used evidence of modern American slavery to illuminate conditions in ancient Rome. Bradley (1989) on slave rebellions opens with a chapter on slavery in the New World. Although Bradley and Hopkins emphasized the complexity of Roman slavery, their use of modern evidence implicitly assumed that slave economies separated by two millennia were essentially the same. Slavery, however, is not always and everywhere the same. Roman slavery was at the opposite extreme from slavery in the southern United States; many Roman slaves—like free workers—responded to market incentives.

Historical slave systems have differed between polities and across time. There is no reason to think that the choices for all slaves at all times were close to completely divested of freedom. In order to understand the role of slavery in ancient economies, we need to inquire about the choices open to slaves in the ancient world. Our interest here is in differences between conditions of slavery in different times and places. For example, George Washington wrote in 1775 that the "plains of America are either to be drenched with blood, or Inhabited by Slaves" (Fischer 2004, 16). He believed that only people of independent means could be truly free, and he saw the boundary between slaves and free people as being both economic and political. The Marxian term, wage slavery, emphasizes how hard it is to represent labor conditions by a simple binary comparison, since the term, slavery, was used to express the limitations of choice by "free" workers: "The worker of today [mid-nineteenth century England] seems to be free because he is not sold once for all, but piecemeal by the day, the week, the year, and because no owner sells him to another, but he is forced to sell himself in this way instead, being the slave of no particular person, but of the whole property-holding class" (Engels 1993, 91).

Few people chose to be a slave; almost all Roman slaves were forced into slavery as captives, children of slaves, abandoned children, or debt bondage. It was bad to be a slave in the early Roman Empire, as it has been bad to be a slave throughout history. A Roman slave was subject to the cruelty endemic in

the early Roman Empire with less protection than free people; a person who found himself or herself in slavery had drawn a poor hand from the deck of life. But even if slaves were at or near the bottom of society and the economy, it makes sense to ask how hopeless their position was. Slaves were unfortunate people, but they were still people.

All people, even slaves, need to have incentives to do their work. Free people may work to increase their income. If slaves cannot legally lay claim to the fruits of their labor, other incentives must be constructed. These incentives may be classified as positive (rewards for hard or good work), or carrots, and negative (punishment for slacking off or not cooperating), or sticks. There is a large literature on the incentive structures of modern American slavery, possibly because the high emotional content of this literature makes consensus elusive (Wright 2006). But while disagreements remain on many points, there is agreement that negative incentives, that is, punishments and sanctions, dominated the lives of modern slaves in the Americas (David et al. 1976; Patterson 1982).

By contrast, positive incentives were more important than negative in motivating Roman slaves. Sticks can get people to work, but generally not to do skilled tasks that require independent work (Fenoaltea 1984). If it is hard to distinguish poor performance from bad luck when work is complex, carrots are far more effective than sticks in motivating hard work. Consider a managerial job, like a *vilicus*. A slave in such a position motivated by negative incentives could claim that any adverse outcomes were the result of bad luck, not his actions. Beating him or exacting worse punishment would lead to resentment rather than cooperation and—one confidently could expect—more "bad luck." A vilicus motivated by positive incentives would anticipate sharing in any good luck; he would work to make it happen. Contrast this example with that of an ordinary field hand. His effort could be observed directly and easily; slackers could be punished straight away. And since field hands typically work in groups, positive incentives that motivate individuals to better efforts are hard to design (Dari-Mattiacci 2011).

There was cruelty in ancient slavery, as there was in early modern indenture. It has been described often because it contrasts sharply with our modern sense of individual autonomy. But cruelty was a hallmark of the early Roman Empire as it has been of most nonindustrial societies. Imperial Rome appeared to celebrate cruelty more than usual as an offshoot of its military orientation; ancient cruelty was by no means reserved for slaves. Wickham (2009, 21) opens with a graphic description of cruelty in legal proceedings and the assertion that "the Roman world was habituated to violence and injustice." The vivid examples of violence toward slaves do not make the case that cruelty dominated the lives of slaves more than free men since we also have many competing

stories of more benevolent slave conditions. Slave revolts also do not give evidence of predominantly negative incentives. Most attested slave revolts were concentrated in a short span of time in the late republic, a time of great social upheaval (Bradley 1989; Roth 2007; Urbainczyk 2008).

For example, the miserable condition of slaves working in the bakery overseen by Apuleius's golden ass (*Golden Ass*, 9.2) do not illustrate the harsh conditions of Roman slavery, but rather the dismal conditions of ordinary labor in preindustrial economies. In these Malthusian economies, greater productivity resulted in larger populations rather than gains in working conditions or real wages. Almost all workers before the Industrial Revolution and the demographic transition lived near what economists call subsistence. This does not necessarily mean the edge of starvation, but it often means people working to the limit of their endurance. And work in a small bakery was and is very hard, long, and hot, even today.

It is necessary to distinguish between rural and urban conditions when evaluating the balance between positive and negative incentives. Rural slaves in antiquity were those slaves most like modern slaves; they performed work that was easily supervised and were subject to negative and even cruel incentives. Urban slaves in the early Roman Empire, which have no modern counterpart, were in a different position. Rio de Janeiro in the early nineteenth century provides a partial parallel. But this modern example exposes the uniqueness of ancient Rome (and perhaps other ancient cities as well) because the prevalence of slaves in Rio was very short-lived, the slaves there were almost all unskilled, and Rio was a city at the fringe of market activity (Karasch 1987; Frank 2004). Urban Roman slaves are the main focus of this discussion, since their conditions have not been understood. We do not know how large a share of Roman slaves were urban. It was a substantial fraction, even possibly reaching half of all slaves at some times.

To understand the differences between slave systems, it is necessary to differentiate slavery in two dimensions. The first dimension comes from anthropologists, who distinguish between open and closed models of slavery. Open slavery is a system in which slaves can be freed and accepted fully into general society. In anthropological terms, freedmen and women are accepted into kinship groups and intermarry freely with other free persons. Closed slavery is a system in which slaves are a separate group, not accepted into general society, and not allowed to marry among the general population even when freed. Roman slavery conformed to the open model; freedmen were Roman citizens, and marriages of widows with freedmen were common. By contrast, "American slavery [was] perhaps the most closed and caste-like of any [slave] system known" (Watson 1980, 7). (The anthropological classification is different from that used in Harris [1999], where a slave system was open if slaves

Table 6.1.
Varieties of slavery in the five slave societies

	Frequent manumission	*Only exceptional manumission*
Open systems	Early Roman Empire	
Closed systems	Classical Greece, 19th century Brazil	Southern United States, the Caribbean

Source: Temin (2004b).

were being imported; closed, if not.) This difference placed Roman slaves in a very different position relative to other workers than that occupied by modern American slaves.

In addition, manumission into Roman citizenship offered an important incentive for urban and perhaps also for some rural slaves. It is the key element that defined slavery in the early Roman Empire, and it reveals the open nature of Roman slavery. Manumission was common, but not universal. There were no rules determining who would be freed, but more cooperative and productive slaves had the best chance for manumission by their owners.

Slaves often were able to purchase freedom if they could earn the necessary funds in a peculium, which served as a tangible measure of slave productivity. The right of slaves to accumulate and retain assets was an important part of the incentive structure of slaves that brings their conditions closer to free men. If a slave was sold or freed, he kept his peculium, even though slaves technically could not own property (Crook 1967, 187–91). Of course, if a slave used his peculium to purchase his freedom, his former owner acquired possession of the slave's earnings. Slaves even owned slaves.

There was nothing like the peculium in modern American slavery. Brazil offers a partial modern exception, where some slaves could earn enough to purchase their freedom (Schwartz 1974; Pinto Vallejos 1985; Karasch 1987). Brazilian slaves even could earn a *pecúlio*, a right made official by reference to Roman law in 1871 (Childs 2002).

I summarized these observations in table 6.1. Fenoaltea presented an abstract model that cannot cover all bases; its advantage was to isolate important characteristics of labor systems. It resembles the simple models explained in chapter 1. In this vein, I proposed a simple classification of slave systems to show how unusual Roman slavery was. Scheidel (2008) expanded this matrix as shown in table 6.2 to allow for intermediate cases and for variations within each system. Rome, Athens, and Brazil each appear twice in Scheidel's table

Table 6.2.
Varieties of slavery in the five slave societies

	Frequent manumission		*Only exceptional manumission*
Open systems	Rome (household?)		Rome (agricultural?)
		Brazil, Athens	Brazil, Athens
Closed systems			Southern United States, Caribbean

Source: Scheidel (2008).

to represent complexity within the slave conditions in these three places. Even in the expanded table, Rome stands out as having had the most open slavery, revealing that manumission was uniquely attractive when available. It is possible, although there is little evidence, that manumission was more prevalent in Roman cities than in the Roman countryside.

In the expanded table also, Roman and modern American slavery are differentiated; there is no overlap in the conditions of these two slave systems. In fact, Roman slavery is the only slave system that seems to have had frequent manumission, and therefore the only system in which freed slaves fully entered free society—albeit only in a generation or so to hold political office. Trimalchio, the lavishly ostentatious freedman portrayed in Petronius's *Satyricon*, is a uniquely Roman figure. Comparisons between American and Roman slavery may be an inevitable result of the scarcity of Roman data, but they should be used only to pose questions, not to imply similarity.

Modern American slavery was a closed system. The New World slaves did not enter Eurocentric American society on easy terms; their opportunities were severely limited. Their descendants in the United States are still awaiting complete integration into society. The descendants of former African slaves have fared much better in Brazil, where manumission was more frequent. Even in Brazil slaves only began to be freed with any regularity in the nineteenth century when pressure for the abolition of slavery rose. Yet, since freed slaves were still excluded from respectable society by former Europeans, few positive incentives were available to them.

Roman slavery had some attributes of another modern institution, indentured service. Poor Englishmen who wanted to immigrate to North America in the eighteenth century would indenture themselves to pay for their passage

across the Atlantic. Not being able to pay up front, they mortgaged their future labor to pay for their passage. Indentures were for a fixed number of years, often fewer than five, and immigrants were able to resume life without stigma after their indenture was over. While indentured, the immigrants had their freedom to move, to choose occupations, or even to determine the particulars of their life severely circumscribed. They were, in a descriptive oxymoron, short-term slaves (Galenson 1981).

The frequency with which Greek slaves were set free is unknown, but freed slaves in Athens did not become members of Greek society. They inhabited "a limbo world in which full political and economic membership of the community was denied them." Unlike Athenian citizenship, Roman citizenship was inclusive. This fundamental difference between the two may have determined how each society interpreted slavery. In any case, the prevalence and visibility of manumission among Roman slaves made Roman slavery far different than slavery in Athens (Garnsey 1996, 7).

By the time of the Principate most slaves were probably slaves from infancy, either as the children of slaves or unwanted children of free parents, since captives were few by then. A debate about whether slaves were replenished through reproduction or maintained through foundlings and the slave trade persists, but most scholars agree that the supply of captives had dwindled. Rules for manumission became explicit. Augustus enacted a law (*lex Fufia Caninia*) restricting the proportion of slaves that a slave owner could manumit at his death but also preserving the structure of incentives by forcing owners to decide which of their slaves to set free. Rights of freedmen were expanded. The incentive for slaves to act well became clear. Freedmen moved into skilled and well-rewarded trades and other activities, and their children born after manumission entered society with all of their rights (Scheidel 1997; Harris 1999).

Manumission was common and well known in the early Roman Empire. Livy recounted a legend about a slave who was freed in 509 BCE, the first year of the republic, as a reward for faithful service, albeit of a political rather than an economic nature. Although Livy could not have known whether the story was true, he thereby revealed attitudes in his own time. A legal principle of the era dealt with the status of a child born to a woman who conceived while a slave, was freed, and then enslaved again before giving birth. For this to have been an interesting question, the boundary between slavery and freedom must have been permeable (Livius, *History*, I, 2.3–5; *Pauli Sententiae*, 2.24.3).

No counts of Roman manumission exist, but the myriad references to manumission and freedmen in the surviving records attest to its frequency. Scheidel (1997, 160) assumed that 10 percent of slaves in the early Roman Empire were freed every five years, starting at age twenty-five in a demographic exercise. Some of Scheidel's assumptions have attracted vigorous rebuttal, but not this

one (Harris 1999). These estimates and opinions apply to the totality of urban and rural Roman slaves. In the judgment of a modern observer, "Most urban slaves of average intelligence and application had a reasonable expectation of early manumission and often of continued association with their patron" (Weaver 1972, 1). In the judgment of another, "Roman slavery, viewed as legal institution, makes sense on the assumption that slaves could reasonably aspire to being freed, and hence to becoming Roman citizens" (Watson 1987, 23).

The Egyptian census listed no male slaves older than thirty-two. Since the census counted household slaves only, this age truncation suggests widespread manumission rather than exceptionally high slave mortality. Female slaves generally were freed if they had more than three children, which may not have been uncommon in an age without family planning. Manumission on this scale must have been apparent to all slaves, certainly to all urban slaves, and a powerful incentive for them to cooperate with their owners and to excel at their work (Bagnall and Frier 1994, 71, 342–43; Columella, 1.8.19). Apparently, slave women had to have undergone either three live births or had to have three living children at the time of the next birth. The stipulation is clearer in a will cited in Justinian's *Digestum* (1.5.15), which deals with the disposition of triplets under a will that freed the mother at the birth of the third child

Slave conditions in the southern United States were completely different. Manumission was the exception rather than the rule; American slaves could not anticipate freedom with any confidence. Manumission required court action in Louisiana, an onerous process that left traces in the historical record. An exhaustive count of Louisiana's manumission showed that the rate in the early nineteenth century was about 1 percent in each five-year period, an order of magnitude less than Scheidel assumed for the early Roman Empire (Whitman 1995; Hall 2000; Cole 2005). Many of those freed were children under ten, and the majority of the adults freed were women—presumably the children's mothers. Fogel and Engerman (1974, I, 150), champions of positive incentives in American slavery, reported even lower manumission rates at mid-century: "Census data indicate that in 1850 the rate of manumission was just 0.45 per thousand slaves." That is, .045 per 100 slaves or 0.2 percent in a five-year period, two orders of magnitude lower than Scheidel's reasonable guess for Rome. American slaves, and particularly male slaves, had little anticipation of freedom and little incentive to cooperate in the hope of freedom.

In Brazil, manumission began roughly at the outset of slavery, although many legal and circumstantial barriers prevented it from becoming a matter of course. Its pace was slow before the nineteenth century, but it accelerated rapidly during the last decades of Brazilian slavery. Rio de Janeiro contained 80,000 freed slaves in a total urban population of 200,000 in 1849. Brazil as a whole contained 1.1 million slaves and 2.8 million "freemen" in 1823 and 1.5

million slaves and 8.4 "freemen" in 1872. Nonwhite free persons had become a majority of the population in Salvador by 1872. Brazilian slaves often could earn enough to purchase their wives' freedom, although they frequently did not have enough to obtain their own. As in Louisiana, two-thirds of the freed slaves in Brazil and in Rio de Janeiro were women. A recent study of early nineteenth-century censuses in São Paulo confirmed the Brazilian predilection to manumit women rather than men—125 men for each 100 women among Brazilian slaves in 1836, but only 87 men for each 100 women among free coloreds. Any effect that manumission might have had on Brazilian slave workers as an incentive was diminished by the clear Brazilian pattern of freeing slave women rather than slave men (Schwartz 1974; Mattoso 1968, 50, 164; Nishida 1993, 365, 376; Luna and Klein 2003, 162–63).

Successful freedmen intensify the incentive for manumission that merges the work of slaves and free workers. Even freedmen living a marginal existence can serve as models for slaves, since freedom is desirable, whatever the economic cost. But its attraction undoubtedly increases to the extent that freedmen are accepted, even prominent, in free society. Unlike in other slave societies, freedmen in the early Roman Empire were citizens (Duff 1928; Treggiari 1969). In fact, they were ubiquitous in the late republic and early empire, engaged in all kinds of activities, including administration and economic enterprise. The number of men who identified themselves as freed on the tombstones during this period is astonishing. They may not have ascended to high Roman society, but their children bore little or no stigma. Their success was common knowledge. Seneca (*Epistulae Morales*, 27, 5) ridiculed a rich man by remarking that he had the bank account and brains of a freedman. In Finley's (1980, 98) words, "The contrast with the modern free Negro is evident."

Why were freedmen so prominent? The process of manumission separated the more able from the others. The prospect of manumission was an incentive for all slaves, but the most active, ambitious, and educated slaves were more likely to gain their freedom as a reward for good behavior or by purchase. The system did not work perfectly; many slaves were freed for eleemosynary motives or at their owner's death. But, for the most part, freedmen were accomplished individuals. It was good policy to deal with and hire them, and it makes sense to say so only because Rome had a functioning labor market. Contrast this scenario with that of freed slaves in the antebellum United States, where the infamous Dred Scott decision of the Supreme Court (60 U.S. 393, 407, 1857) decreed in 1857 that freed slaves could not be citizens and "had no rights which the white man was bound to respect."

Freed slaves in Brazil lived a similarly marginal existence, not bound but not fully free either. Known as *libertos*, they and their children were clearly isolated from the main society and were not prosperous. Census material and

related data always indicated to which group a free person belonged. Even though freed slaves were Brazilian citizens, their legal rights were "quite limited." Libertos "continued to owe obedience, humility, and loyalty to the powerful." The physical appearance of freed slaves in Brazil made them easy to distinguish. The marginalization of freed persons in North and South America demonstrates that slavery in these areas was a largely closed system—although Brazil was not as closed as the United States—in contrast to the open system of the early Roman Empire (Mattoso 1986, 179–83; Schwartz 1974; Karasch 1987, 362; Chalhoub 1989; Nishida 1993; Libby and Paiva 2000; Luna and Klein 2003, 172).

Education is a key to the nature of Roman servitude. American slave owners relied on negative incentives and discouraged the education of slaves because they were afraid of slave revolts led by educated slaves. Roman slave owners used positive incentives, allowing, and even encouraging, slaves to be educated and perform responsible economic roles. Education increased the value of slave labor to the owner, and it increased the probability that a slave's children would be freed. Educated slaves had the skills to accumulate a peculium, and they would be good business associates of their former owners. Most freedmen worked in commercial centers, which provided an opportunity for advancement.

Educated slaves are markedly associated with positive incentives and uneducated slaves with negative incentives. Many educated Roman slaves were administrators, agents, and authors—for example, Q. Remmius Palaemon, who was educated in the first century C.E. ostensibly "as a result of escorting his owner's son to and from school (Bradley 1994, 35)," who probably had more direct exposure than simply acting as a *paedagogus*. In the republic, Cato educated slaves for a year, in a sort of primitive business school, and then sold them (Plutarch, *Cato the Elder*, 21). Anyone enacting such a plan with American slaves would not have been celebrated; he would have been ostracized, jailed, and fined. The Virginia Code of 1848 (747–48) extended to freedmen as well as slaves: "Every assemblage of Negroes for the purpose of instruction in reading or writing shall be an unlawful assembly. . . . If a white person assemble with Negroes for the purpose of instructing them to read or write, he shall be confined to jail not exceeding six months and fined not exceeding one hundred dollars." Education does not even appear in the index to Fogel and Engerman (1974). So few Brazilians of any sort were educated that no contrast between slave and free workers in this context is possible.

Many Roman slaves, educated or not, competed with freedmen and other free workers in a unified labor market. Various occupations emerged to meet the demands of urban residents, particularly rich ones. Skilled slaves were valuable to merchants and wealthy citizens because they could serve as their agents,

in much the same way was their sons could: "Whatever children in our power and slaves in our possession receive by *manicipatio* or obtain by delivery, and whatever rights they stipulate for or acquire by any other title, they acquire for us" (Gaius, *Inst*. 2.87). Watson (1987, 107) expressed surprise that the Romans did not develop a law of agency, but the Romans did have a law of agency—the law of slavery (and sons). Slaves were more valuable than free men in that respect. Witness the frequent references to literate, skilled slave agents in the surviving sources (Lintott 2002; Jones 1956).

Columella (1.8-1-2) aptly exposed the difference between ancient and modern slavery: "So my advice at the start is not to appoint an overseer from that sort of slaves who are physically attractive and certainly not from that class which has busied itself with the voluptuous occupations of the city." This warning would not, and could not, apply to modern slavery, both because modern slaves could not indulge in "voluptuous occupations" like Columella's list of theater, gambling, restaurants, etc., and because a modern slave could not have been appointed as manager of a substantial estate.

Implicit in Columella's advice is the ease with which slaves could change jobs. For example, when Horace was given an estate on which he employed five free tenants and nine household slaves, he chose a vilicus from an urban household with no apparent training in agriculture. The mobility of labor must have been even more pronounced for free labor. The demand for unskilled and semiskilled labor for particular tasks varied widely over time in both the country and the city. Agricultural demand varied seasonally; in the late republic and undoubtedly at other times, the peak rural demand for labor was satisfied by the temporary employment of free workers. Urban labor demand varied less frequently, but possibly more widely. Public building activity in the Principate was sporadic; workers must have been attracted to these projects in one way or another. The presumption among classicists is that free workers were hired for them, lured by the wages offered. If so, they also must have had ways to support themselves and their families when public building activity was low (Aubert 1994, 133; Garnsey 1998, 143–45; Brunt 1980; Thornton and Thornton 1989).

Slave wages are not widely documented, despite the fact that some slaves must have earned wages to accumulate a peculium. The preceding discussion indicates that slaves were interchangeable with free wage laborers in many situations. Although the evidence for monthly and annual wages comes largely from Egypt, and the information about slaves comes mostly from Italy, Roman slaves appear to be like long-term employees. The analysis of slave motivation and the wide distribution of slave occupations suggest that slaves were part of an integrated labor force in the early Roman Empire.

How did the Romans create such an integrated labor system? Why is Roman slavery an outlier in figures 6.1 and 6.2? There are two reasons. Roman

slavery expanded and developed into the form in which we know it during the conquests of the Roman Republic in the third and second centuries BCE. The Roman conquests were centered on the Mediterranean Sea, and the war captives looked like Romans. This made it easier to have an open slave system, contrasting with modern slavery composed of captives brought across the Atlantic from Africa to America. In addition, the Romans conquered the Greeks, taking educated captives into slavery. It was natural for the Roman slaveowners to employ these captives in activities that would benefit from their knoweldge and skills. These activities were harder to monitor than simple physical labor, and carrots worked better than sticks. Manumission is the ultimate carrot for a slave (Dari-Mattiacci 2011).

The observation that educated people became slaves reverses the causation noted earlier in this chapter that open systems of slavery with manumission promoted education. The earlier statement was that manumission led to education; the previous paragraph asserts that educated slaves led to manumission. Which is correct?

This is an identification problem, just like the one considered in chapter 4. There I asked whether inflation was the cause or effect of political instability. Here I ask whether frequent manumission was the cause or effect of educated slaves. The resolution of this problem is the same in both cases; the two phenomena emerged simultaneously and were jointly caused by another, separate event. In this case the independent event was the Roman conquest of the Mediterranean, which led to both educated slaves and frequent manumission. The uniqueness of Roman history generated a unique form of slavery.

Hopkins (1978, 115–32) asked, "Why did Roman masters free so many slaves?" His answer was complex. On one hand, he noted that the promise of freedom was a powerful incentive: "The slave's desire to buy his freedom was the master's protection against laziness and shoddy work." He distinguished Roman slavery from that in the southern United States. On the other hand, he emphasized the similarity of these two types of slavery and emphasized the role of cruelty and negative incentives. He devoted more space to slave resistance and rebellions than to slave achievement and cooperation. He argued that the apparent sharp line between slavery and freedom was part of a continuum of labor conditions, but he failed to break away from the view of American slavery being formulated at the time he wrote. This imperfect analogy still dominates the field (Bradley 1994).

Garnsey (1996, 87) argued that ancient slavery was less harsh than slavery in the southern United States. This judgment was placed late in a book of intellectual history that stretched from Greeks to Christians, and Roman slavery as a distinct labor system was not emphasized. Garnsey (1996, 97) noted that "the prospect of manumission gave [Roman] slaves an incentive to work and

behave well." He drew out the implications of this proposition for the idea of slavery, particularly among Christians. I draw implications for the economic role of Roman slavery in the Roman labor force.

Bradley (1987) devoted a chapter in his study of Roman slavery to manumission, but he minimized its role as an incentive. He described manumission as bribery and as social manipulation, confirming his overall judgment that "the Roman slavery system was by nature oppressive and was maintained for the benefit of the privileged only" (Bradley 1987, 19–20). He seemed to view Roman slavery as a closed system where slaves and freedmen remained socially distinct from the free population, a presumption made explicit in his later book comparing ancient and modern slavery (Bradley 1994).

In addition to buying freedom, some valuable Roman slaves were freed without payment. This might be a reward for more complex achievement, or it could be for noneconomic reasons. This incentive mechanism therefore operated with considerable uncertainty. That made manumission in the early Roman Empire a bit like speculating with a new company today. Success is a product of both skill and luck, and the latter can be the more important. Success only comes to those that try, that is, those people who are willing to take the risks present in any start-up company. And there does not seem to be a shortage of people willing to take such risks today. Manumission represented the same kind of opportunity for Roman slaves. If a slave tried, both skill and luck would play a part in his eventual success or failure, but we should not think that the risks of the process discouraged many slaves.

One way to see this argument is as an expansion of remarks in *A Theory of Economic History* by J. R. Hicks, a Nobel laureate in economics who was interested in history as well as theory. Hicks argued, "There are two ways in which labour may be an article of trade. Either the labourer may be sold outright, which is slavery; or his services only may be hired, which is wage-payment" (Hicks 1969, 123). Hicks acknowledged that slavery typically is a cruel, brutal institution, but he softened this indictment when slaves have personal relations with their owners and can take economic actions on their own, as he said they did in the early Roman Empire. Hicks remarked, "Perhaps it should be said when this point is reached, the slave is only a semi-slave" (Hicks 1969, 126n).

For some poor people, the life of a slave appeared better than that of a free man. Ambitious poor people sold themselves into Roman slavery in a concrete realization of Hicks's long-term employment contract that promised, however uncertainly, more advancement than the life of the free poor (Ramin and Veyne 1981). This action, however rare in the early Roman Empire, would have been inconceivable in a closed system of slavery system built on negative incentives. Saller (2000, 835) explained how it came to be in Rome: "The disproportionately high representation of freedmen among the funerary inscriptions

from Italian cities reflects the fact that ex-slaves were better placed to make a success of themselves in the urban economy than the freeborn poor: upon manumission many of the ex-slaves started with skills and a business."

Some Roman slaves were educated, and even educated people sometimes had the bad luck to be enslaved. Hereditary slaves in cities often received education as well. There was no prohibition against educating slaves as there was in modern slavery. Modern slave owners relied on negative incentives and were afraid of slave revolts led by educated slaves. Ancient slave owners used positive incentives and allowed and even encouraged slaves to be educated and perform responsible economic roles.

Freedmen were accepted into free society on an almost equal basis, that is, they were granted Roman citizenship. The well-known association of freedmen with former masters worked to their mutual benefit. Information was scarce in the early Roman Empire. When people engaged in trade or made arrangements for production, they needed to know with whom they were dealing. Roman society was divided into families, which provided some identification for individuals to minimize moral hazard and adverse selection. Slaves retained the names of and connections with their former owners and therefore could be identified as members of their owners' family (Garnsey 1998, 30–37). This identification helped the former slave to operate in the economy, and a productive freedman returned the favor by increasing the reputation of his former owner and his family. Freedmen could marry other Roman citizens, and children of freedmen (who were free) were accepted fully into Roman society. Findlay (1975) derived the optimal timing of manumission for a profit-maximizing owner.

Why did so many freedmen identify themselves as such on their tombstones (Taylor 1961)? It does not seem like something to be proud of in the traditional view of Roman slavery. But if manumission was an incentive and freedmen were the people who had responded most ably to that incentive, then there is something to be proud of. A freedman was attractive to deal with or hire because he had shown ambition and ability to get freed. These qualities were something to be proud of, and freedmen should have been proclaiming them when they could. To identify yourself as a freedman was to show you had been, in modern parlance, a self-made man, not the recipient of inherited wealth. This opportunity is the hallmark of open slavery.

Following Steinfeld (2001), we can think about a continuum of incentives, from almost all negative, as in a Nazi concentration camp or the Soviet gulag, to virtually all positive, as in a progressive school where no child is criticized and all children are winners. Most working conditions fall somewhere between these two extremes. Modern jobs clearly are near, but not at, the positive end; one can be fired or demoted for nonperformance. American slavery was near

the opposite end; the threat of punishment was ubiquitous, while rewards for good service were rare. Roman slavery, by contrast, was far closer to the positive end than this, although hardly as close as modern jobs. Rural, illiterate, and unskilled slaves in the early Roman Empire may have experienced something like American slavery. Educated urban slaves experienced something close to the working conditions of free men.

Scheidel (2005b; 2008) and Harper (2010) argued that the choice of labor system was affected by the relative prices of free and slave labor. They accept in this view Hicks's and Steinfeld's points that slave labor was not too different from free labor. Slaves and free workers might be used for different purposes when free laborers could not be attracted to specific jobs or where they could not be contracted to stay for a long time, but there was enough overlap of slaves and free workers that relative prices were important in the choice of labor systems. Wickham (2009, 36) argued that this interchangeability continued into the late Roman Empire where free and unfree (in Wickham's term) workers lived alike.

Slaves were able to participate in the labor market of the early Roman Empire in almost the same way as free laborers, although their starting point often was considerably less favorable. The example of shackled slaves on Cato's estate has been taken as typical of Roman slavery, making it even harsher than the army. This assumes that the few cases of large slave holdings were typical of Roman slave holdings. It seems more likely that the few shackles that have survived until today are representative of only the extreme upper tail of the distribution of slave holdings. Most slaves probably were held in small numbers by farmers and households. Senators may well have held slaves in large units and under stressful conditions, but they were the exception to the lives of most Roman slaves (Roth 2007).

In other words, slaves started from a low place—the bottom only if they lacked education—but they did not need to remain there. Freedmen started from a better position, and their ability to progress was almost limitless, despite the existence of some prominent restrictions. These conditions created powerful positive incentives for slaves in the early Roman Empire. As Gibbon magisterially pronounced early in *The Decline and Fall of the Roman Empire*: "Hope, the best comfort of our imperfect condition, was not denied to the Roman slave; and if he had any opportunity of rendering himself either useful or agreeable, he might very naturally expect that the diligence and fidelity of a few years would be rewarded with the inestimable gift of freedom" (Gibbon 1961, 36).

Newly published documentary texts are constantly revealing more cases of slaves who clearly are well above the margin Gibbons described, such as Phosphorus Lepidianus, slave of the emperor Claudius, lending the bank of

the Sulpicii the substantial sum of HS 94,000, equivalent to the gross annual salaries of over one hundred legionaries, for just over a month in 51 CE. In some cases these freedmen and slaves were clearly acting as agents of the emperor's *patrimonium* (privy purse), and at a local level they, like the managers of any large private estate, must have been involved in all kinds of credit arrangements. However, no source even hints that the patrimonium was a regular source of credit for individuals. In other cases, as with Phosphorus, it seems that imperial freedmen and slaves were acting on their own account, which raises the question of the source of their finances. They may have been temporarily diverting public or patrimonial resources which they were handling to make short-term private investments (*TPSulp.* 69; Plinius, *Nat*. VII,129).

Having shown how Roman slaves fit into the economy, we need to ask where they came from, as well as how numerous and valuable they were. The Romans engaged in many wars during the late republic, and the Roman Empire was the result of all the military successes of the republic. Why did the Romans engage in these expansionist campaigns? There must have been multiple motives, but one of them surely was economic gain (Harris 1979). Having conquered another group, the Romans were entitled to take all the booty they could carry and to tax the surplus from the defeated people on a continuing basis thereafter. It is clear that the Romans found many valuable objects to take away with them. They were exhibited in victory parades in Rome, and we can see the remains of one campaign in the triumphal Arch of Titus in the Roman Forum.

Defeated people posed a difficult issue. The victorious Romans could get immediate gain from bringing them back as slaves, or they could leave them in place and collect taxes from them. If the Romans were modern economists, they would make this choice according to the expected future value of the gains from slaves in Rome and in the conquered provinces. We know that immigrants from less-developed countries to Europe and the United States earn more than their friends back home (Borjas 1987). The same probably was true of slaves in Roman Italy relative to taxable people in the provinces. If the Romans figured this out, then it made sense for them to bring as many defeated people back with them as slaves as they could. We do not know why they brought so many slaves back to Roman Italy, but it may have been the results of thoughts like these.

The result was that slavery was most common in Roman Italy, although smaller concentrations of slaves were spread around the empire. Hopkins (1978) guessed that slaves represented about one-third of the Italian population at the start of the Principate, but more recent scholarship has reduced this percentage. The most recent survey of Roman slave demography explains in detail why all demographic estimates are the result of assumptions and concludes:

"According to my reconstruction, the total number of slaves in Roman Italy never exceeded one or at most one-and-a-half million. The population had been created by the influx of anywhere between two and four million slaves during the last two centuries B.C." (Scheidel 2005a, 64).

The free population of Roman Italy is not known with any confidence. The low estimate is about 6 million, while the high estimate is about twice that (Scheidel 2004). Even with the low estimate, the proportion of slaves was smaller than Hopkins asserted. The stock of slaves in Roman Italy was lower than the inflow because of a large outflow of slaves through death and manumission. Urban slaves—like urban citizens—had high mortality, and manumission was frequent. The result is that the proportion of slaves in Roman Italy probably reached its peak around the start of the Roman Empire and declined slowly after that. There were fewer slaves in the Roman provinces, and slaves were a smaller proportion of the population in the rest of the Roman Empire. If the high estimate of the total Roman population is adopted, the proportion of slaves is even smaller.

Slaves therefore were not the dominant labor force either in the city or the Italian countryside of the early Roman Empire. Slaves were less than one-fifth of the Italian population and fewer than that elsewhere in the empire during the Principate. The number of slaves was around 10 percent of the population by the fourth century, and Italy had lost its unique concentration of slaves (Harper 2011). Slaves in Egypt appear from surviving census returns to have composed about 10 percent of the population, spread among households that each held very few slaves. As two-thirds of the listed slaves were women, they appear to have been household rather than agricultural workers (Bagnall and Frier 1994, 48–49, 71).

Roth (2007) argued that the description of slaves in the agricultural manuals of Cato, Varro, and Columella conforms to Roman literary styles. They described how to grow crops, and they discussed the labor force for this activity. They were not describing the labor requirements of large plantations or villas, because the art form of their essays did not focus on this question. In particular, Roth pointed to evidence of weaving activity for clothes and other textiles that was done traditionally by women. And there were other household activities to be done that were best done by women. Only if there were women and families on large plantations would the slave population been able to remain relatively constant over time.

Slavery endured as long as the Roman Empire itself lasted. Wickham (2009, 36) asserts that the western empire "was not at risk" in 400. The apparent prosperity of the fourth century may not have equaled the abundance of the early empire, but it supported "middling consumption on a mass scale . . . that fueled strong demand for farm labor" (Harper 2011, chapter 1). The people we

call slaves were still called *servi*, who lived side by side and similarly to *coloni*, as free tenants were known. The eastern empire fared better after the fourth century, and slavery consequently endured there longer.

Slaves were not restricted to the countryside. By the fourth century Rome was only half as large as it had been earlier, but cities still were substantial. John Chrysostom (*In epistulam ad Ephesios, homilia* 22.2. PG 62, col. 158) said in the late fourth century, "I say that even the household of the poor man is like a city. For in it there are also rulers. For instance, the man rules his wife, the wife rules the slaves, the slaves rule their own wives, and again the men and women rule the children." This proclamation and similar ones from Augustine Enarrationes in Psalm 124.7 (CC 40: 1840–41) and Synesius of Cyrene (Syn. Regn. 20 [Terzaghi: 46–48]) suggest that slaves were prevalent in cities as well as in the country, although Roman Italy may no longer have had the highest concentration of slaves. In the absence of any reasonable numbers, it may be best to assume that the prevalence of slavery may have been around 10 percent of the population throughout the late empire.

In other words, there was no gradual transition from slavery to serfdom in late antiquity. Instead, many institutions of the early Roman Empire remained more or less intact until the destruction of the western empire in the fifth century. Among these institutions was Roman slavery with its strong aspects of organized manumission and the open nature of slavery. While the empire had become more bureaucratic and the role of the central administration was stronger, there was no more separation between slave and free labor than before. Violence was still endemic, but there is little evidence that it was markedly worse for slaves than for comparable free persons. We can talk about the supply and demand of slave labor in the same way we think of the supply and demand of agricultural labor (Harper 2011).

We have slightly more data on the price of slaves than we do on their quantity. We must remember that these prices only make sense in the context of a Roman labor market as described earlier. Only if there was a functioning labor market can we assume that the isolated price observations that have survived are representative of prices in a particular place and time. And only if slaves and free workers were substitutes in many jobs can we compare slave prices and wages.

Scheidel (2005b, 2008) contrasted the price of slaves with the wages of free workers in Athens and Rome. He found that slave prices were low relative to wages in Athens and high in Rome. Scheidel explained this apparent contrast by differences in the *quantities* of slaves available in the two places and times. It is more likely that the price difference comes from the different *qualities* of slaves in the two systems than the different quantities. Since we are talking about long time periods, there was plenty of time for quantities to adjust, but

the quality of slaves stayed constant because the institutions of slavery endured. The arrays in tables 6.1 and 6.2 show that Roman slaves were alone in being in an open slave system and alone in having a good chance of manumission. As noted already, this unique combination—in all the slave systems shown in the table—created conditions for educated and valuable slaves. Just as the wages of educated and skilled free workers were high, the prices of educated and skilled slaves were high. This is a more likely source of the contrast between Athens and Rome than the appeal to slave quantities. Even in table 6.2, Athenian slavery differed from Roman.

Harper (2010) extended the price series for Roman slaves into Late Antiquity. He found that the pattern of relatively high slave prices extended into the fourth and possibly the fifth century. It would be extraordinary if the conditions of slave quantities remained unchanged from the late republic to the late empire. It is more likely that the nature of Roman slavery remained unchanged, as Harper (2011) argues. He documents from a variety of literary sources that the institutions of slavery remained quite stable until the early fifth century. The stable relative prices lend additional support to his interpretation.

Workers in the unified labor market of the early Roman Empire could change jobs in response to market-driven rewards. As in all agricultural economies, the labor market worked better in cities than in the countryside. Slaves participated in this system to a large extent. The restrictions on labor mobility may have been no more severe than the restrictions on labor mobility in early modern Europe. Education was the key to the good life in the early Roman Empire, as it is today. Roman workers appear to have received wages and other payments commensurate with their productivity, and they were able to respond, at least as fully as in more modern agrarian societies, to the incentives created by these payments.

"The Roman lawyer Gaius wrote that the fundamental social division was that between Slave and Free" (Garnsey 1998, 134, citing Gaius, *Institutiones*, 1.9). The fundamental economic division in the early Roman Empire, however, was between educated and uneducated—skilled and unskilled—not between slave and free. Saller (2000, 835) summarized this view succinctly: "The disproportionately high representation of freedmen among the funerary inscriptions from Italian cities reflects the fact that ex-slaves were better placed to make a success of themselves in the urban economy than the freeborn poor: upon manumission many of the ex-slaves started with skills and a business."