Abstract: In ancient China, early bronze 'tool money' came to be replaced by round bronze coins that were supplemented by uncoined gold and silver bullion, whereas in the Greco-Roman world, precious-metal coins dominated from the beginnings of coinage. Chinese currency is often interpreted in 'nominalist' terms, and although a 'metallist' perspective used be common among students of Greco-Roman coinage, putatively fiduciary elements of the Roman currency system are now receiving growing attention. I argue that both the intrinsic properties of coins and the volume of the money supply were the principal determinants of coin value and that fiduciary aspects must not be overrated. These principles apply regardless of whether precious-metal or base-metal currencies were dominant.

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How was the valuation of ancient coins related to their quality and quantity? How did ancient economies respond to coin debasement and to sharp increases in the money supply relative to the number of goods and transactions? I argue that the same answer – that the result was a devaluation of the coinage in real terms, most commonly leading to price increases – applies to two ostensibly quite different monetary systems, those of early China and the Roman Empire.

Coinage in Western and Eastern Eurasia

In which ways did these systems differ?\(^1\) In Western Eurasia coinage arose in the form of oblong and later round coins in the Greco-Lydian Aegean, made of electrum and then mostly silver, perhaps as early as the late seventh century BCE. Quickly adopted by Greek poleis, precious-metal coin use gradually spread across the Mediterranean before it greatly expanded in the Middle East in the wake of Alexander’s conquests and Hellenistic state formation. When Rome joined this currency system in the late fourth century BCE, silver was its principal coin metal in terms of value. Under the imperial monarchy, gold gained prominence and became the most important store of value. With the recurrent debasement of silver coin in the third and fourth centuries CE, gold became even more dominant in late antiquity, accompanied by base-metal issues.

In East Asia, monetary traditions began with cowry shells and tool money in the form of increasingly miniaturized spades and knives made of bronze. Round coin appeared in the fourth century BCE, always with a hole in the center, a feature that may have derived from jade disks (bi). A rival currency system of square gold plates and small bronze lumps operated by the southern state of Chu ceased once Qin conquered the other Warring States in the late third century BCE and made use of its own round banliang (half-ounce) bronze coins universal. The Han state continued this tradition, which culminated in the wuzhu (‘five-grain’) bronze coin that was introduced in the 110s BCE and subsequently cast in the tens of billions. This set the tone for later dynasties, especially the Tang and Song, which took pains to restore comparable traditions. Precious metal, primarily gold, circulated only as bullion. Under the Han, gold was available in the form of normed ingots known as ‘horse/deer-hoof money.’ Its importance relative to bronze coin remains unclear but it appears to have played a secondary role and became far less common after the beginning of the Common Era. When economic expansion in the Song period called for greater money supply, it was paper money that filled the gap. Although the inflow of American and Pacific silver from the sixteenth century onward eventually sustained a silver-based currency system in China, precious metals were not normally coined until the nineteenth century.

Metallism and nominalism

The main difference between the eastern and western traditions lies in the use of precious metal-coins (initially silver and eventually increasingly gold) in the West and of coined bronze (coupled with more modest quantities of uncoined bullion) in the East.\(^2\) The Chinese reliance on base-metal coinage has prompted claims that intrinsic coin value was less important than in the more overtly metallist western tradition (esp. Thierry 1993; 2001a, b). Moreover, some Roman historians have more recently begun to stress the fiduciary dimension of the Roman imperial currency system (Drexhage, Konen and Ruffing 2002, 200-201; Strobel 2002; 2004; Ehling 2008, 853). I hope to show that these positions misrepresent the character of both monetary traditions.

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\(^1\) For a more detailed survey of the differences between what I have called the ‘Aegean’ and ‘Chinese’ monetary systems, see Scheidel 2008, 268-276.

\(^2\) I have discussed possible reasons for these different trajectories in Scheidel 2008, 276-283; 2009, 178-187.
In both Rome and China, the evidence speaks clearly in favor of a strong nexus between the quantity and quality of coin on the one hand and its valuation on the other. I therefore advocate a predominantly metallist model of ancient monetary history.

It is important to define our terms. The label ‘metallist’ semantically privileges coin quality over quantity. However, a ‘metallist’ perspective focuses as much on coin quantity as much as on quality and should consequently be referred to as ‘metallist-quantitative’. This is easy to understand: if a coin is melted down and turned into two coins with half the previous metal content each and the purchasing power of each new coin is halved as a result, this is a consequence of quality (in that the amount of metal per monetary unit has been halved relative to a given good) as much as of quantity (in that there are now twice as many monetary units relative to a given good). Moreover, a ‘metallist-quantitative’ perspective does not eo ipso neglect the elementary facts that money use is and always has been critically dependent on trust, that coins tend to be somewhat overvalued relative to bullion value in order to make coin production profitable, and that most users may well be unable to trace minor differences in coin quality and adjust their valuations and behavior accordingly. These, in fact, are the reasons why I focus on coin use in two very large and long-lived quasi-monopolistic super-states. If trust or – to choose a less positive term – inertia were ever likely to be a critical determinant of coin use, it was in the context of systems that provided more or less uniform currency to tens of millions of users across millions of square kilometers. In these environments, socially ‘caged’ coin users lacked attractive alternatives to state-issued currency and may have been more likely to accept it at face value than they would have done in more fragmented currency systems where diverse issues were free to compete on intrinsic quality. It is in the former environment that evidence of ‘metallist’ preferences assumes especial significance.

Perceptions of coin quantity and quality

Modern observers are attentive to the quantity theory of money expressed in the equation of exchange, \( MV = PQ \), where \( M \) is the total amount of money in circulation, \( V \) is the velocity of money (the average frequency across all transactions with which a unit of money is spent), \( P \) is prices, and \( Q \) is an index of the final real value of all (monetized) expenditure.\(^3\) Basic awareness of the relationship between the money supply and prices can be traced back to antiquity. As Claude Nicolet showed back in 1971, a number of Roman authors had already established a connection between the precious metal supply, the money supply, prices, and interest rates (Nicolet 1971, esp. 1225; cf. also Lo Cascio 1981, 82; De Cecco 1985, 822). In this respect, Chinese writers had preceded them by up to several centuries but were more interested in establishing this relationship in general terms.\(^4\) The Guanzi, a series of dialogues believed to have been composed in the fourth and third centuries BCE and collated in their final form in the first century BCE, first enunciated a quantity theory of money by proposing supply manipulations by the government to increase state revenue. Due to such a ploy

‘90 percent of the country’s money supply will be in the hands of the government on high while only 10 percent will remain with the people below. While cash is in short supply and valued and goods are plentiful and cheap, buy up goods, paying for them with cash. Money will then be in the hands of the

\(^3\) I use here a simplified definition of \( M \) as all coined money (what economists would define as MB, the monetary base), excluding credit money and money substitutes (M1,2,3 in modern parlance) that were probably quite important, especially in imperial Rome (Harris 2006 and 2008b), but cannot be properly quantified. \( Q \) is defined here as all expenditure in cash, which given the likely significance of barter in early economies was necessarily only a fraction of all transactions.

\(^4\) For the earliest recorded views concerning the balance of money and goods, see Hu 1988, 24-28 (Shan Gui, sixth century BCE?), 81-82 (Mozi, fifth century BCE).
people below, but goods will be in the hands of the government and increase in value tenfold.\(^5\)

The underlying principle is aptly summarized thus: ‘if money is valued, goods will all be cheap, but if money is cheap, goods will all be expensive’ (Guanzi 22.76 ‘Shan Zhi Shu’, in Rickett 1998, 417).

According to Jia Yi’s memorial, set in 175 BCE, state manipulation of the money supply was thought to be capable of stabilizing prices as long as the state enjoyed a monopoly on minting:

‘When coins are ‘light’ [i.e., abundant], then by an appropriate method they will be collected; when they are ‘heavy’ [i.e., scarce], then likewise by an appropriate method they will be distributed. Thus money and goods will surely have stable prices.’ (Hanshu 24B:5b)

Commodity prices were regarded as a function of the amount of money in circulation, or what we would think of as M (including V). The best way to express the Chinese position as an equation might be \(\frac{M}{G} = P\), where G is the amount of goods in circulation. If M rises relative to G, P rises as well, and vice versa. Velocity is not identified as an independent factor, and Q is implicitly considered stable and therefore does not function as a distinct variable either.

Post-ancient Western thought on this topic lagged far behind. The earliest known instance of a quantity theory of money occurs in correspondence among Polish aristocrats in 1542, explicitly linking an increase in silver coin to rising prices.\(^6\) Quantity theory was subsequently developed in more general terms in the 1550s and 1560s by Martín de Azpilculta Navarro, Luis de Molina, and Jean Bodin.

Yet how do we test for the significance of coin quality versus coin quantity? Gresham’s Law that bad money drives good money out of circulation provides a means of determining the relative weight of coin number and coin quality. If coin number were the only significant variable – that is, if all formally equivalent coins were viewed as fully interchangeable monetary units –, all coins would evenly lose value whenever M (with V held constant) increases faster than Q, and not just newly debased ones. This is not borne out by the evidence of ancient coin hoards, which suggests that users valued coins for their intrinsic value (see below).

Valuation of coins according to their intrinsic properties is fundamentally at odds with the notion that government fiat succeeded in determining the exchange value of coin regardless of quality. It is true that we encounter nominalist conceptions in both China and Rome. In the second century BCE, Jia Shan observed that ‘money is a useless thing in itself,’ and Chao Cuo claimed that since pearl, jade, gold and silver could not be eaten or clothe people, the only reason why people treasure them is ‘because the ruler makes use of them’ (Hu 1988, 286). This might seem to imply – although it is not made explicit – that coin had no value beyond that which the authorities assigned to it.

And even though these intellectual underpinnings seem slender, government action at times implies a strong belief in – or at least a desperate hope for – nominalist acquiescence. In regulations dating from the mid-third century BCE, the Qin state decreed that ‘when commoners in their deals use cash, fine and bad [coins] are to be used together; one should not venture to differentiate between them.’\(^7\) In a similar vein, third-century CE Roman law claimed that a coin was not – or rather no longer – a commodity (\textit{merx}) but the embodiment of a given value


\(^6\) Volckart 1997, 433-434. Volckart 435-437 convincingly shows that contrary to what is often claimed, Nicolaus Copernicus did not make this connection in his treatise \textit{Monetae cudendae ratio} of 1571, in which he relates prices to the intrinsic value of coin.

\(^7\) Hulsewé 1985, 52; see also 53: ‘Traders who occupy stalls, as well as officials of government storehouses should not venture to circulate cash or ‘cloth’ selectively.’ Cf. the Qin practice of mixing coins of different weight in bags of 1,000: Thierry 1997, 170-171.
(pretium), which suggests that its intrinsic value was not supposed to be crucial to its function. The number of coins, not their substance, was meant to determine their value: Roman money was pecunia numerata – counted, not weighed.\(^8\) The idea of a fixed exchange rate between different denominations, as in Augustus’s currency system, fits this notion: coins of different metals were interchangeable (Volusius Maecianus, ibid.; Florentinus, Digest 45.1.65.1). Indeed, users were legally required to accept genuine coins (Paul, Digest 5.25.1). The private melting down of coins appears to have been illegal.\(^9\)

Nevertheless, the notion that users actually view and treat coins differently based on their physical properties is of great antiquity. Gresham’s Law (enunciated in a letter to Queen Elizabeth of 1558) was already hinted at in Aristophanes’ Frogs of 405 BCE (718-726) and surfaced several times in the medieval Christian and Islamic traditions. As we will see in the next section, the fact that early Chinese sources do not explicitly make the same point must not be construed as evidence in favor of a nominalist conception of the underlying monetary system.

**Coin valuation in early China**

Ancient Chinese sources repeatedly report or imply coin valuation based on quality.\(^10\) The Qin injunction cited in the preceding section only makes sense if it was not obvious that all coins be treated the same and does not show that this rule was actually followed. Indeed, in the early Western Han period, Jia Yi’s memorial reported that ‘in some places the coins used are [so] light that to every one hundred of them must be added a certain number; in other places they are [so] heavy that it is impossible to balance them equitably.’ A single weight standard – ensured by a state monopoly on minting – was supposed to solve this problem.\(^11\)

The Taiwanese scholars Chen Yen-liang and Lai Cheng-chung have recently argued that a period of ‘free coinage’ in the early Western Han period (from 175 to 144 BCE) generated coins that were of higher quality in terms of fineness than centrally produced coins both before and after, and that this shows that if no fixed exchange rates are set between different kinds of coin, good money can drive out bad. This, of course, provides further support for the metallist position, given that this process could not have unfolded if users had not been highly sensitive to the intrinsic value of coin. Finer coin prevailed thanks to its quality, which was determined entirely by metal content.

How did this work? In 1975, a scale dated to 165 BCE with a brief inscription quoting what might be called a ‘Money Weighing Law’ was found in a Han tomb in Hubei province. The law required circulating (and at that time often privately cast) coins to be checked with official scales. Chen and Lai argue that use of such scales required coin users to make up for any shortfalls relative to the official 4-zhu weight standard (cf. Hanshu 24B:4a-b quoted above). This, once again, would not have made sense unless metal content, here expressed in terms of weight, was an essential determinant of coin value.

Around 119/18 BCE, the government of emperor Wu introduced ‘white metal’ money supposedly made of a silver-tin alloy (but de facto largely of lead) and valued at cash levels that

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\(^8\) Thus Paulus, Digest 18.1.1, with Volusius Maecianus, Assis distributio 44; Caius, Institutes 3.14, 3.90. For discussion, see esp. Hasler 1980, 113-122; Wolters 1999, 356-362; Strobel 2002, 115-118. For the notion that earlier Roman coins had been weighed, not counted, cf. Pliny the Elder, Natural History 33.46; Caius, Institutes 1.122.

\(^9\) If that is what conflare in Paul, Digest 5.25.1 means, which is likely but not certain: cf. Wolters 1999, 365 n.84, with Hasler 1980, 85.


\(^11\) Jia Yi in Hanshu 24B:3b-5b, with the quote from 24B:4a-b as translated by Swann 1950, 235. It is clear from the context that ‘light’ and ‘heavy’ does not refer to relative abundance (as above) but to coin weight per se: since there were no fixed prices for commodities, regional differences in monetization levels would not have caused problems for consumers. See already Swann 1950, 235 n.407.
mark it out as pure token issues. This reportedly encouraged rampant counterfeiting and the experiment was soon abandoned. Instead, the state put the currency system on a solid basis with the introduction of the *wuzhu* bronze coin. A new state monopoly on minting ensured fairly stable weight and alloy standards, and huge output – 28 billion pieces in slightly more than a century – for the first time created monetary unity across the Han Empire.12

Whereas there is no direct evidence for the intrinsic (metal) value of the *wuzhu* coin, Tang coins of the mid-eighth century CE that were cast on a strict standard and whose alloy contained a similar proportion of copper as Han *wuzhu* coins appear to have been priced at about twice their bullion value, thereby leaving room for the cost of production and seigniorage.13 For a base-metal currency, this level of overvaluation seems reasonable, given the cost coin users would have faced in probing, melting, and recasting coins on a scale large enough to make this venture profitable and the risk of punishment worth incurring. This suggests that the threshold for widespread demonetization (and counterfeiting) would not have been reached until coins were assigned a face value that amounted to several times their intrinsic worth.

This is precisely what happened in the early first century CE when the much more ambitious fiduciary schemes of the usurper Wang Mang met with resistance and failure.14 In a first step, in 7 CE, the Han *wuzhu* coins were supplemented by the *daqian*, a coin that weighed 2.4 times as much as the *wuzhu* but was valued at 50 times as much, as well as knife money that was overvalued at even higher rates. One goal of these nominally high-value coins was to exchange them for private gold stocks, ownership of which was outlawed. Two years later the Han *wuzhu* were formally demonetized and replaced by a coin at one-fifth of its weight but the same face value. In what may have been an anticipation of increased counterfeiting, private ownership of copper and charcoal was made illegal, a wildly impractical rule that could not prevent illegal private minting. The much more full-bodied Han coins were hoarded, a practice that came to be punished by deportation to the frontiers. All these measures show that the state was aware of coin users’ metallist preferences and tried to counter them.

Fiduciary issues were stepped up in 10 CE with the issuing of 28 different kinds of generally highly overvalued denominations, including 16 different kinds of round or spade-shaped bronze coins. The top-valued spade coin of 1,000 cash was overvalued more than 200 times relative to the Han *wuzhu*. If the (admittedly hostile) historiographical tradition is to be believed, the state tightened the screws even further by making possession of these new token coins mandatory. Nevertheless, this extreme form of token money turned out to be nonviable: as some of the new issues ‘finally did not circulate,’ and ‘the common people hated’ the novel arrangements, most of these denominations were soon suspended.15

In the third century CE, new series of token coins lead to currency collapse in the sub-Han state of Wu, and occasional experiments with token coins in the Period of Disunion likewise failed.16

Conversely, successful issues required a stable weight standard in which actual coin weight matched the weight signaled by the coin’s denomination. This was true of Qin’s launch of the *banliang* coin in the fourth century BCE (which originally weighed half a *liang*), of Wu’s introduction of the *wuzhu* coin, and again under the Tang in 621 and 732 CE.17 It also catches the eye that stable weights coincided with high fineness and weight loss with debasement.18 All this shows that coin quality was not irrelevant to either issuer or user and that although the state strove

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15 Thus *Hanshu* 99B:14b, 24B:21b.
16 Peng 1994, 171-173; Thierry 2003, 94.
18 Chen and Lai 2008; Scheidel 2009, 191-192.
to produce adequate coins whenever it could, it gave in to financial pressure to debase if necessary.

In 495 CE, the Northern Wei adopted a policy of free coinage, decreeing that ‘anyone will be allowed to do the coinage is he so desires, but the copper for coinage must be purely refined without any admixture.’ This likewise implies that metal value was considered of to be paramount importance.

The most mature early Chinese discussion of quantity theory is found in the writings of Kong Ji’s ‘Discourse on Money’ dating from 482 CE. He noted deflation, as grain prices failed to rise even after floods because ‘the quantity of money inside the country is small’. Most tellingly, he blamed nominalist fiat for past monetary dislocations:

‘The reason illicit coinage could not be stopped even by harsh punishment was that rulers intended to save copper and spare workmanship in the process of minting. Those who were bent on saving copper and sparing workmanship usually asserted that money itself was a useless thing, that it merely served as a means of exchange. Thereupon they purposefully made it lighter in weight and but greater in quantity, so as to economize labor and made coinage easy. They did not consider the evils that might follow.’

To conclude: In the Chinese tradition we encounter two separate strands of thought. One holds that more coins – an increase in M relative to other goods (~Q) – will reduce the price of coin relative to the price of other goods. The other one stresses that coin debasement is conducive to counterfeiting. In a base-metal currency system in which the scope for debasement through adulteration is limited, debasement will primarily take the form of weight reduction, be it in absolute terms or by raising the face value in relation to metal weight (in extreme cases to the extent that weight becomes irrelevant, as in some of the instances mentioned above). Weight reductions make it easier for counterfeiters to turn a profit, whereas maintenance of an elevated weight standard (i.e., a low ratio of face to intrinsic value, or relatively low seigniorage) would have discouraged them. What is missing from the argument is the connection between price inflation (the first strand of thought) and debasement (the second one): in so far as debasement facilitated an expansion of the money supply, the two were logically linked and predicated upon one another.

It is possible that in times of falling mint output (as in the Period of Disunion or the late Tang period) debasement did not inevitably lead to an increase in the money supply. However, the debasements that occurred under the Qin or under Wang Mang were undoubtedly driven by a desire to increase the amount of money in circulation. In those cases, government spending goals were the catalyst for debasement as a precondition for an expansion of the money supply, which in turn must have affected prices in so far as the volume of monetized transactions did not keep pace, which at least under Wang Mang would simply have been impossible.

The Chinese case is instructive for the broader debate about the historical determinants of coin value because it shows that even a base-metal currency system that might perhaps have been viewed as more amenable to overvaluation by state fiat was in fact highly sensitive to coin quality. While the use of copper instead of gold or silver may have raised the level of tolerance of coin overvaluation relative to metal value, the underlying principle was the same as with precious-metal coins: the market value of coin was primarily a function of its intrinsic value and crude attempts to introduce token coins were invariably unsuccessful.

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19 Quoted in Hu 1988, 328, from the ‘Treatise on Food and Commerce’ in the History of the Northern Wei Dynasty.
21 The hoarding of bronze coins likewise underscores their character as a store of value: von Glahn 2004, 168, 171.
Coin valuation in the Roman Empire

I begin with two fundamental points. In any monetary system, cash prices – i.e., the real value of coin – can reasonably be expected to be related to the amount of coin that was available to transact exchange. Moreover, whenever we are dealing with a precious-metal system, the default position or ‘null hypothesis’ ought to be that coin users were quite sensitive to coin quality. From this perspective, it is claims that user behavior implies dissociation of coin quality and quantity on the one hand from coin value (in the sense of purchasing power) on the other that require credible substantiation. Not all possible interpretive frameworks are similarly plausible: the burden of proof rests on proponents of what I would label ‘strong’ nominalist views to a greater extent than on adherents to the ‘null hypothesis.’\(^{22}\) For this reason, it is not sufficient to identify cases in which the relationship between coin quality, quantity, and value is somehow unclear or simply undocumented in order to sustain a ‘strong’ nominalist position. As I show in the final portion of this section, requisite standards of proof have not been met by the chartalist camp.

Attempts to negate the pervasive significance of coin quantity and quality suffer from what I propose to call the ‘illusion of adequate information’ – the fallacious notion that all the information that would be required to make such a judgment is actually available. It is not hard to demonstrate that this is not normally the case. Any appreciation of coin valuation in the nominally inflexible trimetallic currency system of the first three centuries of the Roman imperial monarchy is contingent on our knowledge of several significant relationships. These include, but are not limited to, in no particular order, (1) changes in the intrinsic (market) value of gold and silver as a result of mining output and currency exports; (2) changes in the volume of transactions that involved coin; (3) changes in the proportion of gold and silver that was used for monetary purposes; (4) changes in the volume of monetized transactions relative to the money supply, caused by a variety of factors from minting volume to demographic change; (5) changes in coin velocity; (6) changes in prices; and (7) changes in the relative weight of coined money and credit money within the overall money supply. For example, changes in the supply of gold relative to silver may have caused the intrinsic value ratios of different denominations to deviate more widely from the official exchange rate of gold and silver coins; the expansion of monetized transactions may have curbed price rises in the face of growing coin supply; change in the extension of credit may have affected price levels; the eventual contraction of mining output may have increased the real value of remaining bullion stocks and helped offset coin debasement; the temporary withdrawal of gold coin may have affected the real value of debased silver coin; demographic contraction may have reduced the volume of monetized transactions and raised prices even in the absence of concurrent growth in the coin supply; changes in the provision of credit may have precipitated change in coin velocity; and so on. Modern observers can only guess at many of these variables. At the very least, this pervasive uncertainty ought to inject a healthy dose of skepticism into the debate. The fact that we are often unable to observe or work out the complex interplay between coin quality, quantity, and value must not be taken to suggest that this fundamental nexus was sometimes greatly relaxed or otherwise inoperative: it is far more likely that we simply cannot tell how these variables interacted in a particular case.

In the following, I illustrate the validity of a ‘metallist-quantitative’ approach to Roman monetary history by summarizing a series of features that support this position before I critique

\(^{22}\) A ‘strong’ nominalist reading is one that goes beyond an appreciation of seigniorage and of users’ insensitivity to minor changes in coin quality, and holds that the real value of coin was at least temporarily unaffected by significant and potentially conspicuous quality loss. The notion that prices did only weakly or not at all respond to dramatic coin debasement in the third quarter of the third century CE is a suitable example.
recent claims concerning the supposedly exceptional nature of developments in part of the third century CE.

(1) At the inception of the Augustan currency system, there was no indication that precious-metal coins were significantly overvalued relative to the amount of bullion they contained: since a depressed gold price of HS3,000 per pound in the wake of Caesar’s conquests in Gaul had seemed remarkably low, the face value of HS4,000 for 40 aurei containing one pound of gold cannot have been much higher than the corresponding bullion value (Wolters 1999, 373 and Harris 2008, 10-11, on Suetonius, Caes. 54.2).

(2) Selective hoarding of older, high-quality coins gained prominence from the early third century CE onward, as decline in silver coin quality became increasingly noticeable to consumers. Coin users preferentially hoarded older denarii and avoided the overvalued antoniniani for as long as that was feasible (Schubert 1992). It should hardly be necessary to point out (contra Ehlig 2008, 852 n.74) that the eventual prominence of highly debased coins in later hoards need not be seen as a sign of indifference to coin quality but may simply indicate that better coins had finally become scarce or unavailable. In coin hoards of the same period from Roman Egypt, higher-value coins (in the form of Neronian issues) were likewise preferred over more recent debased ones.\(^\text{23}\)

(3) In the words of Kevin Butcher and Matthew Ponting, the Roman minting authorities ‘were experts at disguising the declining silver contents of their coinages:’ they endowed silver coins with an artificially produced surface layer that was heavily enriched with silver, thereby creating an impression of elevated fineness where it was visible to coin users.\(^\text{24}\) This method only makes sense if the state perceived the public to be sensitive to coin quality and intrinsic value: if denarii had simply been accepted at face value by state fiat, this procedure would have been redundant. It is very likely that at least for the period from the Neronian debasement of 64 CE to the Severans, the Roman state succeeded in maintaining an illusion of higher-than-real fineness: after all, it managed to fool modern numismatists for a long time.\(^\text{25}\) When the Alexandrian mint debased the tetradrachm under Nero, it took care to maintain the previous size and gross weight, presumably likewise because it mattered to users (cf. Christiansen 1994, 91-92). All these measures are logically inconsistent with nominalist practice.

(4) It has been observed that very-high-quality coins, such as pre-Neronian coins or high-fineness silver issues of Domitian, quickly disappeared from hoards, whereas older but lower-quality coins such as Mark Antony’s legionary denarii survived for centuries. As it is hard to imagine that given the relatively small – and average! – fineness deviations involved, private users could have identified, withdrawn, and melted down somewhat higher-quality coin on a grand scale, their disappearance is best ascribed to state intervention (e.g., Duncan-Jones 1994, 102; Wolters 1999, 376-379). This once again underlines the crucial importance of precious metal to the monetary system: why would the state have gone to the trouble of re-minting minutely better coins unless it was keen to back the currency system with real, bullion value for as long as this was feasible? In a more strongly nominalist tradition, the state would have had no incentive to capture and effectively ‘splice’ slightly higher-quality coin because users would not have been unduly concerned about a drop in coin fineness.

(5) The value of gold relative to silver implied by the metal content of imperial gold and silver issues fell from 11.5 to 1 in 14 CE to 4 to 1 in 253 CE (Walker 1978, 156). Even if we have


\(^{24}\) Butcher and Ponting 2005a, 173 (quote). See also Butcher and Ponting 1997; Gitler and Ponting 2003; Ponting 2009. The same method was employed for the production of provincial silver coinage: Butcher and Ponting 1995.

\(^{25}\) Butcher and Ponting’s research has shown that D.R. Walker’s much-cited surface analyses of the fineness of imperial silver coins, conducted in the 1970s, consistently underrated the degree of debasement.
to allow for some seigniorage, especially in the case of silver coin, that would modify these ratios and, as noted above, Walker’s fineness measurements are in need of (downward) revision, the overall direction and magnitude of this shift is not in doubt. It is often assumed – although not strictly speaking demonstrable beyond the Severan period (Dio 55.12.5, with Buttrey 1961) – that the official exchange rate of 25 denarii per aureus remained unaffected by this, even though this process would have left debased silver coin greatly overvalued in real terms relative to gold. While some hints at different – i.e., higher – market exchange ratios have been noted, they remain ambiguous. The most powerful indirect evidence for a clash between statutory exchange rates and the actual valuation of different denominations by coin users is provided by the fact that gold coin gradually disappeared from third-century CE hoards and stray finds, a situation that continued well into the fourth century CE (Bland 1996, 81-82, 91; 1997, 33; Katsari forthcoming). This development suggests that coin users withdrew and demonetized gold coin because they were reluctant to exchange it for debased silver, either because statutory exchange rates that increasingly overvalued debased silver issues relative to gold coin remained in place or were only insufficiently relaxed, or because the massive debasement of silver issues made it more difficult to gauge their real value relative to gold – or both. Once again this offers support for a ‘metallist’ perspective.

(6) In the fourth century CE, the ongoing debasement of the billon nummus caused its increasingly dramatic depreciation relative to the reliable gold aureus and subsequent solidus (convenient summaries in Harl 1996, 164, 168). The Egyptian evidence suggests that prices denominated in drachmae (the equivalent of denarii communes) that were tied to these nummi followed suit (Bagnall 1985). At the same time, prices in gold remained fairly stable (Lo Cascio 1997, 176-177). Markets were astute and relentless in adjusting the exchange value of debased coin relative to full-bodied gold issues. It is not at all clear that this development marked a transition from an earlier system in which gold coin had merely been one element among several in a currency system governed by fixed exchange rates to a different one in which full-bodied gold coin became the new standard of value and effectively floated in relation to lesser denominations. As the earlier reluctance to debase the gold aureus indicates, from the end of the Republic onward gold had always served as the standard of value, against which silver issues were gradually debased. Differences in the way in which markets responded to recurrent debasement of silver/billon issues relative to the ‘gold standard’ cannot show that intrinsic coin value had not always been pivotal to Roman coin use.

26 See Howgego 1995, 142 for a brief summary; cf. also Harl 1996, 133-134. CIG 5008 and 5010 (245/6 CE) point to an aureus being worth 43.75 or 81.25 4drachms = denarii, probably the former (e.g., Lo Cascio 1984, 157), although it is not clear if such a rate would also have applied outside Egypt, where the exchange ratio of the imperial aureus to the provincial tetradrachm may not have been fixed to begin with. It is also telling that in the early third century, pay in gold (salarium in auro: CIL 13.3162) began to be seen as a privilege, which does not make much sense unless its real value relative to debased silver coin had risen. The objection that this is unlikely because payment in devalued silver coin would have alienated military recipients (Ehling 2008, 853) is irrelevant since we cannot tell whether any such loss was offset by payments in kind. For the benefits of gold use in late antiquity, cf. Banaji 2007.

27 Katsari forthcoming argues that the combination of a reduced gold supply (due to less mining and more exports) and the debasement of silver coin drove the aureus out of circulation, and very usefully draws attention to an analogous case from Mughal India (Haider 1999).

28 Violation of statutory exchange rates – which would have occurred in public settings – may well have been more susceptible to credible threats of punishment by the state than private melting, which would have happened in secret. This can be expected to have favored melting over hoarding. Ownership of gold coin was probably concentrated in elite circles, whose members may have found it easier to arrange for the discreet demonetization of their holdings.

29 Thus the very brief summary of Lo Cascio 2008, 172-173, based on a series of his earlier studies.

30 For the evolving flavors of Roman conceptions of money, cf. Lo Cascio 1986; 1996.
No unambiguous exception to this rule has so far been found. Modern claims that price formation in the first three quarters of the third century CE was not closely linked to coin quality and coin quantity but was critically mediated by trust and resulting inertia cannot be empirically substantiated. Data from Roman Egypt traditionally occupy center stage in this debate. As Dominic Rathbone has shown, prices in Roman Egypt rose in the mid-first century CE, remained stable until the 160s CE, doubled within a generation or so, remained stable at the new level from the 190s until around 274 CE, and then suddenly increased about tenfold (Rathbone 1996, 333; 1997, 215). The first price rise coincided with the late Neronian surge in regional coin production from 63/4 to 67/8 CE that greatly increased the supply of (recently debased) tetradrachms.\(^{31}\)

Given that minting output remained comparatively low (and fineness stable) for the following century, both the initial price adjustment and the ensuing price stability are best understood as a function of monetary processes (i.e., an increase of \(P\) in keeping with an increase in \(M\)).

Rathbone has argued that the doubling of prices in the late second century CE was brought about by ‘unprecedented economic dislocation… caused by the Antonine Plague’ (Rathbone 1997, 215, and already 1996, 334). There are two problems with this claim: he fails to identify a proximate mechanism that would have led to the observed outcome, and it is not clear how a plague-induced price rise would result in price stability for the following eighty-odd years instead of a short-term rise followed by abatement as conditions returned to normal. It has recently been suggested that a demographic contraction could have had an inflationary effect by reducing the volume of monetized transactions relative to the money supply (Temin forthcoming, and cf. Zelener 2003, 190). This process can easily be illustrated with the help of the price equation. For the period of price stability prior to the 160s CE, assume

\[
\begin{array}{cccc}
M & V & P & Q \\
100 & 100 & 100 & 100 \\
\end{array}
\]

\[
\begin{array}{cc}
MV & PQ \\
10,000 & 10,000 \\
\end{array}
\]

Prices doubled, and if the population of Egypt declined by 25 percent due to the epidemic, a dramatic but not completely indefensible assumption\(^{32}\), and assuming that the volume of monetized transactions may serve as a proxy of population size, we obtain

\[
\begin{array}{cccc}
M & V & P & Q \\
15,000 & 200 & 75 \\
\end{array}
\]

If the coin supply had remained unchanged, coin velocity would have had to rise by 50 percent. In as much as the plague and other dislocations interfered with credit arrangements and privileged transactions in coin, such an increase might be possible at least in the short term. However, it would be difficult to explain why coin velocity did not eventually return to previous levels as the supply of credit recovered in the following decades and generations. Hence it appears impossible to account for price stability from the 190s to the early 270s without some increase in the coin supply.

\(^{31}\) Christiansen 1988, 89-110. This in turn coincided with the devaluation of the *aureus* and *denarius* in 64 CE. I fully agree with Butcher and Ponting 2005b, 121 that this reform did not create a ‘token coinage’ in Egypt: the difference in intrinsic value between the Egyptian tetradrachm and the imperial *denarius* was small (<10 percent) and sustained by the formal and effective separation of the Egyptian currency system. Moreover, as I point out below, this isolation might have raised the real value of silver within Egypt, erasing any actual interregional differences in purchasing power.

\(^{32}\) Zelener 2003. The (highly uncertain) history of the epidemic, including its scale and effects, is debated at great length in Lo Cascio, ed. forthcoming.
supply. The issue, therefore, is not whether price formation was determined by plague-related changes or by monetary measures: both factors were necessary to produce the observed outcome.\textsuperscript{33}

This interpretation is consistent with the numismatic record. The Alexandrian mint reduced the silver content of the tetradrachm by some 40 percent between 167/70 and 178/82 CE. At the same time, minting, in Erik Christiansen’s words, ‘radically increased’ under Commodus, albeit to a lesser degree than under Nero (Christiansen 1988, 300). However, unlike on previous occasions, the gross weight was reduced as well in a way that ‘would be quite evident to everyone.’\textsuperscript{34} If we thus allow for plague-induced contraction of Q and a modest increase in V to offset diminished credit, a moderate increase in the coin supply is sufficient to account for a doubling of prices, as – purely \textit{exempli gratia} – in

\begin{center}
\begin{tabular}{cccc}
M & V & P & Q \\
125 & 120 & 200 & 75
\end{tabular}
\end{center}

This scenario, or any comparable configuration, can readily be reconciled with what we may reasonably guess about monetary and demographic developments in this period. This is not at all to say that this actually happened: all this simplistic example is meant to show is that a modest increase in the coin supply that was facilitated by debasement, in conjunction with plague-related dislocations, was sufficient to generate and maintain the observed doubling of prices. In this connection, it may be significant that no further systematic debasement occurred between the 180s and around 250 CE: instead fineness fluctuated within a relatively modest range. This, together with low levels of minting, would have helped maintain price stability in this period.

This leaves the question why renewed debasement (in terms of both weight and fineness) in the 250s and 260s CE did not drive up prices until the mid-270s CE.\textsuperscript{35} The most honest answer is that we do not know for certain – but it is \textit{not} that we can somehow establish that in those years price formation was not primarily determined by coin quality and quantity. First of all, and perhaps most importantly, the hoard evidence suggests that minting volume remained fairly modest, even under Gallienus.\textsuperscript{36} Moreover, it is worth bearing in mind that the Egyptian currency system was formally and – judging by the nature of coin finds – also to a large extent effectively isolated from the remainder of the empire. This means that if re-minting and debasement in the third quarter of the third century CE had coincided with a withdrawal of thereby extracted surplus silver stocks from the province, the remaining silver in circulation would have appreciated relative to goods and services. This could have helped stabilize prices at existing levels. Once again, we cannot tell whether this actually happened. The main purpose of this conjecture is to show that there are plausible alternatives to the notion that for as long as an entire generation, Egyptian prices were insensitive to monetary conditions.\textsuperscript{37} My concern is one of methodology: if

\textsuperscript{33} \textit{Contra} Rathbone 1997, 215 (plague and other dislocations, but not debasement), van Minnen 2001, 176-177 (plague acted indirectly via debasement); Bagnall 2002, 116 (just debasement).
\textsuperscript{34} Christiansen 1994, 108, who notes the ‘thinner flan’ that is said to be obvious to everyone handling these coins even today.
\textsuperscript{35} Gross coin weight appears to have dropped by about a quarter and fineness by about two-thirds between the 240s and the 270s CE: Harl 1996, 142.
\textsuperscript{36} Christiansen 1994, 117-118. (Ehlig 2008, 854 misrepresents Christiansen.) Output did not surge until the reign of Probus, \textit{after} the dramatic price rise of c.274 CE.
\textsuperscript{37} I consider this conjecture ‘plausible’ because state spending needs were concentrated in areas outside Egypt proper, a basic fact which would have provided a credible motivation for bullion transfers. Note that Christiansen 1988, 105-106 conjectures an earlier withdrawal of Egyptian silver in the wake of Nero’s debasement and reminting of the tetradrachm. (Cf., however, Butcher and Ponting 2005b for a demonstration that the scale of any such event, if it indeed occurred, must not be overrated.) See also Rathbone 1996, 328, for the possibility of silver withdrawal from Egypt after 176/7 CE.
a simple and not inherently far-fetched auxiliary conjecture is capable of providing an explanation that is grounded in standard monetary theory, it seems unwarranted to privilege a strongly nominalist reading of Egyptian exceptionalism on a priori grounds.

The sudden tenfold increase in prices around 274 CE is best explained with reference to Aurelian’s re-tariffing and does not pose a problem to a ‘metallist-quantitative’ conception of the Roman Egyptian currency system. Suffice it to note that arbitrary re-tariffing and demonetization of older coin have always had the capacity to induce serious dislocations, as shown by the Han evidence discussed in the previous section. Prices can be expected to have responded accordingly.

Unfortunately, we lack comparable price series from outside Egypt that could be related to changes in coin quality and quantity. A recent claim that two slave prices from the Middle Euphrates region dating from 249 and 251 CE suggest the lack of price inflation proportionate to coin debasement is without merit (Drexhage, Konen and Ruffing 2002, 201, 305). This notion derives from the observation that the reported prices of 600 and 700 denarii for two 13-year old slaves were notionally equivalent to the prices of comparably aged slaves in Egypt, namely 2,600 drachms (equivalent to 650 denarii) for a 13-year old slave around 180/92 CE and 2,200 drachms (or 550 denarii) for a 14-year old in 221 CE (Drexhage 1991: 266). If nominal slave prices on the Euphrates were the same as in Egypt, and if mid-third-century CE prices in Egypt were twice as high as they had been up to the 160s CE, slave prices on the Euphrates might likewise have been twice as high as they had been a century earlier. This conjecture is supported by two equivalent slave prices from Side in Cilicia from 142 and 151 CE, reporting the sale of a ten-year-old girl for 280 denarii and of a twelve-year-old for 350 denarii. Under Antoninus Pius, 350 newly minted denarii would have contained 938g of silver, whereas 700 denarii, if paid in brand-new antoniniani issued under Decius, would have contained 570g (at 2 denarii per antoninianus), or, just possibly, 760g (at 1.5 denarii per antoninianus) or even as much as 913g (at 1.25 denarii per antoninianus: cf. Lo Cascio 1984, 157; 2003, 309). The use of slightly older coins around 250 CE would have reduced the difference in slave ‘silver prices.’ Yet reckoning quite generously with the greatest possible degree of debasement (i.e., the use of brand-new coins valued at 2 denarii per antoninianus), it might seem as if by 250 CE slave prices should have more then trebled instead of merely doubled since around 150 CE in order to compensate for the intervening decrease in coin silver content.

This observation, however, fails to support a nominalist interpretation. A variety of other factors pertaining to the money supply were instrumental in price formation. It is well known that Roman gold and silver mining contracted sharply in the late second century CE (Wilson 2002, 28-29). As a result, the value of these precious metals relative to other goods ought to have risen, thereby compensating for at least for moderate levels of coin debasement (see already Lo Cascio 2008a, 171-172; 2008, 889-893). Purely as a thought experiment, all that would have been required to keep mid-third-century CE prices at twice mid-second-century CE levels while the amount of silver per denarius (or, to be precise, per denarius unit) declined by 70 percent was a reduction of the coined silver stock by 40 percent between the mid-second and the mid-third centuries CE. This would have raised the value of silver coin relative to goods by two-thirds. But even a smaller contraction of silver stocks could have produced the same result. If we assume that two-thirds of total coin value in the second century CE was represented by gold issues, and gold was increasingly demonetized in the third century CE (see above), a contraction of gold coinage

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38 The retariffing hypothesis is now the default explanation in the literature: e.g., Rathbone 1996, 337; 1997, 215; Strobel 2002, 131-144; Ehlig 2008, 857; Haklai-Rotenberg 2009. The even more overtly ‘trust’-based interpretation proffered by Lendon 1990, 119 (predicting inflation from 269/70 CE) cannot easily be reconciled with the price data.

39 Drexhage 1991, 266. The conjecture of comparable price levels is also consistent with comparisons between graffiti from Dura Europos and Egypt: see Ruffing 2002, 34.
by a bit over half would have been sufficient to raise the relative value of silver to other goods by two-thirds even if silver stocks had remained unchanged. More plausibly, the same outcome could also have been obtained by reducing both gold and silver stocks by a relatively moderate degree.

Once again, I do not wish to propose that any of this actually happened. In fact, reality was undoubtedly much more complex. If the ‘Antonine Plague’ had reduced population and the volume of monetized transactions, gold and silver ought to have lost value relative to other goods. At the same time, plague-related dislocations may also have reduced the availability of credit, thereby raising the real value of coins. This suggests that price formation was driven by the interplay of several factors which did not always pull in the same direction: while demographic contraction would have reduced the purchasing power of coins, falling mining output, demonetization of gold coin, and a reduction of credit would all have served to increase it. While it will never be possible to measure any of these variables, it seems likely that taken together, the latter three factors outweighed the former, conceivably by a wide margin. Thus, we can expect the real value of silver coins to have decreased at a lower rate than the rate of debasement.

My point is simple. Absence of evidence is not evidence of absence: as long as we are unable to identify the way in which coin quality, coin quality, and coin value interacted over time, it is unwarranted to draw the conclusion that the lack of a close match between changes in coin quality and price formation somehow demonstrates that the intrinsic value of coin and the volume of currency in circulation mattered less than ‘trust’ and inertia. Recent attempts to do so exemplify what I have already called the ‘illusion of adequate information’ – the erroneous assumption that we know all we need to know to support a particular reading of the data. No-one can deny that this is manifestly not the case here.

The price data from the Dura area suggest that prices in the Roman East and perhaps even in the Empire as a whole may have developed similarly as in Egypt, witnessing a doubling between the mid-second and the mid-third centuries CE. However, we cannot tell whether this happened in a fairly sudden jump, as in late second-century CE Egypt, or whether this process unfolded more gradually, in keeping with the gradual debasement of the silver coinage and the (surmised but plausible) concurrent increase in the coin supply. From a ‘metallist-quantitative’ perspective, the latter seems far more likely: after all, the imperial currency did not experience a sudden debasement equivalent to that of the Egyptian tetradrachm. Instead, it took the (surface layer of the) denarius almost a century (from the 150s to 241 CE) to lose close to half of its silver

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40 If the antoninianus were set at only 1.25 denarii (see above), the silver value of the slaves in question would remain basically unchanged. This may not be likely but shows how many uncertainties have to be taken into account.


42 It is also conceivable that an epidemic depressed the coin supply by reducing the recovery rate of hoards: Zelener ibid.

43 Compare the telling slippage between the following statements in Drexhage, Konen and Ruffing 2002: ‘sind Behauptungen, eine etwa 25%ige Feingehaltsreduktion ziehe eine entsprechende Inflation nach sich, falsch’ (305), and ‘Der Wert der Währung ruhte in erster Linie auf dem Vertrauen der Bevölkerung’ (200). The first statement is correct, the second a complete non sequitur.

44 See esp. Christiansen 1994, 44 fig.1 (albeit subject to the same reservations as those expressed in my next footnote). See also in the text below. Given that an epidemic by itself cannot have caused a stable doubling of prices (see above), contra Rathbone 2007, 165 there is no good reason to suppose that price movements in the empire closely mirrored those in Egypt.
content.\textsuperscript{45} We also have to allow for the possibility that demographic change may have been more pronounced in the densely populated Nile Valley than in many other parts of the empire.\textsuperscript{36}

The only price series that could in theory shed some light in this process, provided by military wages, is too riddled with unknowns to be of much use here. Owing to the ambiguities of the record we simply do not know by how much military base pay rose between 197 and 235 CE – modern estimates range from 200 to 500 percent.\textsuperscript{47} To make matters worse, we also do not know how much of these stipends was paid in kind, and how this share changed over time; nor do we know to what extent raises were intended as real increases or merely compensated for price growth.\textsuperscript{48} For all these reasons, references to military pay cannot shed light on price formation in the first third of the third century CE.

The final question concerns the economic consequences of the dramatic acceleration of debasement and minting in the 260s CE. In this context, it is important to appreciate that evidence of price stability in Egypt up to 274 CE cannot readily be extrapolated to the empire as a whole. As already noted, both silver coin debasement and output growth were much more muted in 260s CE Egypt than for the imperial silver currency. The drop by two-thirds in the mean silver content of the Egyptian tetradrachm between the period from 178 to 251 CE and the 260s CE is a far cry from the decline of the silver content of the \textit{antoninianus} by 65-90 percent between Decius and Gallienus and by 94-98 percent between Decius and Claudius II.\textsuperscript{49} Outside Egypt, the degree of debasement was so extreme that even falling bullion stocks and the withdrawal of gold coin could not possibly have been sufficient to maintain price stability. I would therefore expect a great expansion of the supply of highly debased silver/billon coins to have driven up prices in the 260s CE, well before Aurelian’s monetary reforms. I am not aware of any (non-Egyptian) evidence to verify or falsify this hypothesis.

This, however, does not mean all conceivable reconstructions (privileging either ‘metallist-quantitative’ mechanisms or ‘trust’ and inertia) are therefore equally plausible. Even if coin users had somehow been indifferent to coin quality per se, minting increases in the 260s CE ought to have affected nominal prices through an increase in the coin supply, unless we are prepared to reckon with a wholesale collapse of credit provisions that stabilized the overall money supply. Even if the latter cannot be ruled out for these years of intensifying crisis, it is nevertheless difficult to imagine that a greatly expanded supply of intrinsically increasingly worthless coin did not have an impact on prices. This points to a serious flaw in ‘trust’-based

\textsuperscript{45} I say ‘surface layer’ because the delineation of the decline of the \textit{denarius}’ fineness in Harl 1996, 127, based on Walker’s measurements, now needs to be revised in light of Butcher and Ponting’s work: see above ***.

\textsuperscript{46} This would have reduced the impact on \(P\) of a fall in \(Q\). For discussion of the limitations of plague-related economic effects even in Egypt proper, see Scheidel 2002, 109; Bagnall 2002; Scheidel forthcoming.

\textsuperscript{47} See most recently Rathbone 2007, 159-160 for the many uncertainties. A 200 percent increase (from 300 to 900 \textit{denarii} base pay) involves a 100 percent raise in 197 CE and another 50 percent raise in 212 CE (thus Rathbone ibid.); a 350 percent increase (from 300 to 1,350 \textit{denarii}) involves a 50 percent increase in 197 CE, another 50 percent in 212 CE, and another 100 percent in 235 CE (thus Alston 1994); and a 500 percent increase (from 300 to 1,800 \textit{denarii}) requires a 100 percent increase in 197 CE, 50 percent in 212 CE, and another 100 percent in 235 CE (thus Speidel 1992; Herz 2007, 313).

\textsuperscript{48} The third-century CE price data from the Dura area data speak against raises near the upper end of this range, which would imply a fairly dramatic increase in real terms that would have been hard for the treasury to sustain. Conversely, a more modest estimate of 50 percent in 197 (made plausible by Alston 1994, 115) and another 50 percent in 212 CE, with no (actual or lasting) raise in 235 CE (as implied by Rathbone 2007, 160), would allow for the offset of a 100 percent price rise (as in Egypt) and a 25 percent real raise.

\textsuperscript{49} Harl 1996, 130. Once again proper analysis of coins below their surface layers will necessitate revision of these figures but it is hard to see how the overall magnitude of the change could change in a very significant way.
narratives. They require us not only to assume indifference to coin quality *per se* (which appears highly unlikely, as I have tried to show above, but is at least not theoretically impossible) but also that price formation was somehow insensitive to coin quantity – but only in the third quarter of the third century CE and not in the fourth century CE (see above). Unlike appreciation of coin quality, which might be deemed susceptible to cultural change over time (say, from a hypothetical nominalist perspective during the first three centuries of the imperial monarchy to a more metallist one in late antiquity), the role of coin quantity is not obviously subject to comparable shifts: if it mattered at other times, it also ought to have mattered in the third quarter of the third century CE. Only empirical evidence of Roman price stability outside Egypt in the reigns of Gallienus, Claudius II, or Aurelian could challenge the ‘metallist-quantitative’ default model of price formation in this period. That no such evidence – or evidence to the contrary – has come to light must count as one of the most deplorable impediments to our understanding of Roman monetary history.

**Conclusion**

Evidence of the valuation of coin based on its intrinsic qualities (weight and fineness) has consistently emerged from all over the ancient world, from Qin China to the Later Roman Empire. Whenever claims about the fiduciary character of imperial coins have been made, they can be shown to disregard the possibility of changes in the quantity of coin and a variety of other confounding variables from metal supply to credit institutions and demographic conditions, and therefore suffer from tunnel vision, from the pernicious ‘illusion of adequate information’. While trust and, more importantly, social caging within monopolistic empires may have relaxed the nexus between coin attributes and coin value in proportion to the state’s desire and ability to enforce nominalist standards, the actual extent of any such relaxation must not be overrated. Intrinsic value and the coin supply were the bedrock of monetary valuation. In the context of the data currently available, increasingly popular attempts to elevate less tangible factors such as adherence to state rules and the role of ‘trust’ (viewed as an autonomous force rather than a function of changes in coin attributes) to a pivotal position lack substance and should be rejected unless they can be empirically verified.

**References**


