

- LECTURE -

History of Capitalism Series:  
**Rome's Economic Revolution**

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**Rome's Economic Revolution (#1)**

**[Roman Empire in 218 (# 2)]**

I am going to be talking about a period when Rome was extending her power and influence throughout the Mediterranean. (On the hand-out, you will find a timeline of late Republican Rome). At the beginning of this period, in about 218 B.C., Rome controlled peninsular Italy, Sardinia, Corsica, part of Sicily, and some enclaves on the Dalmatian coast. She was about to embark on a war, the Second Punic War, against the Carthaginian general, Hannibal, who invaded Italy.

It was a war that nearly wiped Rome out. But she defeated Hannibal and survived, and a century later her embryonic empire had expanded to include the whole of modern Italy and Sicily, southern France, Spain, and part of North Africa, as well as Greece and the western part of Turkey.

**[Asia Provincia and Pontus (#3)].**

The Romans called this last area the 'province of Asia'.

Fifty or so years after that, by the mid-first century BC, Rome also controlled the rest of Turkey, Syria and northern France.

During this period Rome was a Republic, run by an oligarchy, comprising, firstly, a small group of magistrates, of whom the most senior were two annually elected consuls, and, secondly, a senate of 300 members of the Roman elite. This was a highly militarised state. No political candidate could run for even the lowest public office without having served ten campaigns in the army. Rome was only at peace for four years in the whole of the second century.

In 66 B.C. the Roman orator, Cicero, delivered a speech, the *De Imperio Cnaei Pompeii*. In it, he argued that Pompey the Great, a leading general, should be given the military command against Mithradates VI, the ruler of Pontus, an area on the Black Sea coast of modern Turkey **[up here]**. Cicero reminds his Roman audience of the disasters which befell them 22 years earlier in 88 B.C., when the same Mithradates invaded the Roman province of Asia **[over here]**.

#### **[Cicero (# 4)]**

In one passage, Cicero says that the invasion caused the loss of so much Roman money, that credit was destroyed at Rome itself:

For then, when very many people lost large fortunes in Asia, we know that there was a collapse of credit at Rome, because repayments were interrupted. It is indeed impossible for many individuals in a single state to lose their property and fortunes without involving still greater numbers in their ruin. Defend the Republic from this danger; and believe me when I tell you –what you see for yourselves—that this credit and this system of monies (the Latin word is *pecuniae*), which operates at Rome in the Forum, is bound up in, and is linked with, those Asian monies (the Latin term is *pecuniae Asiaticae*); the loss of the one inevitably undermines the other and causes its collapse.

The passage is remarkable in its contemporary tone.

#### **[Cicero updated (# 5)]**

Substitute the words ‘US sub-prime’ for  
‘the Asian monies’, the *pecuniae Asiaticae*,

and the words ‘the UK banking system’ for  
‘the system of monies which operates in the Roman Forum’  
and it could have been written about the 2008 credit crisis.

What is so striking about Cicero’s text is that it clearly talks about linked financial markets around the Roman world. The financial capital represented by the *pecuniae Asiaticae* is linked explicitly to the Forum in Rome.

## **[Roman bronze coins [# 6]**

If we re-wind a century and a quarter to Rome's war against Hannibal, it is clear that Rome had also been in severe financial trouble then. The Roman historian, Livy, says that, in 214 B.C., in the middle of that war, the Roman treasury was virtually bankrupt -- a fact confirmed by the contemporaneous debasement of Rome's silver coinage and a dramatic fall in the weight of its bronze coinage. So the interesting question becomes: how did the Romans move from a position in 214 B.C., when their economy was on its knees, to one in 88 B.C. when their economic interests in Asia were so significant that the invasion of that province by Mithradates caused the credit crisis at Rome of which Cicero speaks?

The economic history of the late Republic has enjoyed a renewed attention in the past 20 odd years, but this revival has mainly focused on demographic and agricultural questions (two perspectives that have dominated the debate since the nineteenth century). My argument is that, in second century B.C. Rome, increased inflows of bullion combined with an expansion in the availability of credit to produce a massive increase in Rome's money supply. Or to put it another way, in second century B.C. Rome, there was a boom in monetary liquidity. This increase in the supply and availability of money in turn resulted in a major increase in Roman economic activity because it stimulated market developments in areas such as agriculture, trade, construction and manufacturing. It also resulted, eventually, in the credit crisis of 88 B.C.

## **[Map of New World (# 7)]**

Monetarist explanations of economic behaviour in the ancient world are rare, in large part because of the enormous influence of Moses Finley, Professor of Ancient History at Cambridge in the 1970s, who believed in the primitive nature of the ancient economy. However such explanations are not uncommon in analyses of the middle ages and the early modern period.

So the arrival of vast amounts of gold and silver bullion from the New World is the standard explanation for sixteenth century Europe's rapid steps towards a more specialised, urban, market economy. From 1500 to 1640, the population of England, for example, more than doubled; and the population living in substantial towns quintupled, driven by the flow of people from the countryside to the growing economic prospects of the urban centres. In addition, the growth of trade networks led to major changes in the specialisation and commercialisation of agriculture, a development which we shall find echoed later in this paper.

But we face some major problems in analysing the economy of second century BC Rome. We don't know the size of the Roman economy for any moment of its history and the scarcity of

numerical evidence in our ancient sources is a big issue. Modern economic analysis, of course, makes extensive use of data, mainly produced by governments, industry associations, and corporations, which are collected and subjected to statistical analysis. In ancient Rome, there is no evidence to suggest that anyone collected data of this kind. There are piecemeal survivals of some figures, scattered amongst the works of narrative historians and antiquarians, mainly occasional cash items such as the amounts of bullion in the Roman state treasury and of war indemnities and booty from defeated enemies. There are occasional references to amounts of expenditure. But even for such financial data as does exist, there is sometimes a tendency for ancient authors to stylise monetary valuations into conventional figures.

### **[Indemnities and booty [(# 8)]]**

So I'm going to begin by looking at some reasonably reliable data - the inflows of bullion into Rome during this period, and I have also put on this slide some monetary equivalences as well as some idea of purchasing power.

Now, it is important to realise that the Roman state never borrowed, apart from once, as a crisis measure, during the war against Hannibal. There was certainly no concept of the regular issuance of government debt and there was no bond market.

Unlike, say, the British government, which financed its way through the Napoleonic wars by issuing large amounts of bonds through the Bank of England, the only way that the Roman state could continue to fight its wars was by having enough precious metal coming into the treasury, with which to pay its troops.

So, because the Roman state did not borrow during this period, its expenditure could never have been greater than the income which it received, be it in money or in kind.

During the third century BC, between 300 BC and 218 BC, Rome had seized booty, and in some cases war indemnities, from defeated Italian tribes, from Pyrrhus of Epirus, from Hiero of Syracuse, from the Carthaginians and from the Illyrians. The scale of the booty is unquantifiable; but it looks as though we would not be far wrong to assume war indemnities, paid to Rome by defeated enemies, totalling some 5,000 talents, before the war against Hannibal at the end of the third century.

That the Roman state's resources were not enormous is, however, shown not only by the lack of funds in the treasury in 214, but more generally by the fact that, during the third century, Rome minted very limited amounts of silver coinage.

During the second century B.C., however, as her control and influence expanded through the Mediterranean, vast quantities of bullion came to Rome in the form of war booty and

indemnities from most of her defeated enemies, notably Carthage, Macedonia, and Syria. We know that the war indemnities alone, received between 200 and 150 B.C., totalled over 27,000 talents. Add the value of captured booty, which probably amounts to more than 18,000 talents, and Rome received, over a 50 year period, nearly 46,000 talents of gold and silver from warfare alone, more than seven times the amount that she had received in the whole of the third century.

### **[Polybius (#9)]**

As the contemporary Greek historian, Polybius, said:

“There was perhaps a certain logic in appropriating all the gold and silver for themselves; for it was impossible for them to aim at world domination unless they deprived other peoples of such resources and acquired them for themselves.”

One result of all this was that, in 167, the Roman state suspended the collection of tribute from its own citizens. In effect, this was a massive tax cut. After that date, no tax was levied on the wealth or income of Roman citizens for nearly five hundred years.

At the same time, Polybius suggests that, by the mid-second century, significant quantities of bullion --approximately 35 tonnes of silver per annum--were being mined in Spain, a territory which had been captured from the Carthaginians during the war against Hannibal.

### **[Greenland lead pollution levels (# 10)]**

Independent corroboration of Polybius' report is now provided from an unusual source. From the 1970s onwards, the study of the problem of 'acid rain' drew attention to the existence of a strong south-to-north atmospheric transport that carries not only acid emissions northwards from industrial centres in continental Europe and Britain, but also lead and other pollutants. In the early 1990s, analysis of the ice sheet of central Greenland confirmed that the concentration of lead fallout from the atmosphere rose rapidly from the second century B.C. onwards, reaching a clearly detectable peak at the end of the first century B.C. **[POINT]** Isotopic analysis of the lead, found in these ice cores, suggested that as much as 70 per cent of this man-made lead pollution may be related to silver smelting operations in southern Spain.

This evidence shows that, at the time of which Polybius was writing, smelting activities from silver and lead mining in Spain were creating high and rising levels of atmospheric pollution over Greenland and Europe.

### **[Receipts of silver (# 11)]**

During the second century B.C., therefore, the Romans received money and bullion on a scale which dwarfed anything which they had received previously. From booty and indemnities alone it was the equivalent of 22 tonnes of silver per annum. The Spanish mines were generating 35 tonnes of silver each year.

We also know that, by the early first century, taxation from the territories which Rome captured during the second century BC (of which the province of Asia was the most important) was producing the equivalent of perhaps 190 tonnes of silver per annum.

### **[Roman silver coins in circulation (# 12)]**

These vast inflows of bullion effectively turbo-charged the Roman monetary economy and the coinage element of Rome's money supply expanded rapidly. No mint records survive, but it has been estimated that the supply of Roman silver coins increased by perhaps as much as ten times between 157 B.C. and 50 B.C.

Undoubtedly, some of this coin went into monetizing parts of the Roman economy which still operated on the basis of barter. But the monetary impact of growth on this scale would normally be either to increase the level of economic activity or to cause prices to rise. However, there is nothing to suggest any significant price inflation for important commodities such as wheat, although there is evidence for more extreme price movements in luxury goods, such as specialist slaves, and (nothing changes!) private houses at Rome itself.

### **[The Roman banker relief (# 13)].**

The general lack of inflationary pressure is all the more remarkable given that there is also considerable evidence that credit extended by early Roman bankers provided a mechanism for the creation of money beyond the available supply of precious metals, thereby serving to expand Rome's total money supply yet further.

As we now know, in any economy which has deposit banks, or similar institutions, the money supply is not limited to the volume of coinage or cash issued by the central authorities. The reason for this is that there is [**SLOW**] a 'money multiplier' effect, by means of which bank deposits and loans create the substance with which it is possible to buy things, without diminishing anyone's assets.

But, until very recently, most ancient historians tended to follow Moses Finley who believed that the money supply in the ancient world was essentially inelastic, because of its reliance

on coin and what he termed “the lack of machinery for credit beyond the lending of coins”. On this view, all Roman money, *pecunia*, consisted of official Roman coinage only.

In the last few years, however, a number of scholars have begun to challenge this view, arguing that the term, ‘*pecunia*’, included both coin and credit.

Bankers function largely in a world of hidden transactions and of confidential dealings and so our knowledge would be limited even without the problem of the general scarcity of ancient source material, but we do in fact have sufficient literary material to show that institutions similar to modern deposit banks existed in Rome during the second century B.C

According to the historian Livy, bankers, the Latin term for which is *argentarii*, first appeared at Rome in about 310 B.C. By the second century, we begin to find evidence that their activities had become sufficiently widespread to crop up without comment in contemporary literary works.

For example, about forty passages from the comic playwrights Plautus and Terence, who were writing in the second century BC, refer to banking matters in such a way as to suggest that these activities are considered both by the playwright and by the audience to be commonplace.

From what these playwrights say, it is clear that bankers conducted their business in the forum.

#### **[Plautus *Persa* 433-6 (#14)]**

One could go to them to arrange payments because money was deposited with them, as this quotation shows.

If you entrust the bankers with anything, they are out of the forum faster than a hare from its cage door at the games.

Similarly, the historian Polybius relates an episode, in the late 160s B.C., in which a senator, Scipio Aemilianus, has 50 talents, a very large amount of money, on deposit with a banker.

A number of passages from Plautus suggest that bankers fulfilled both a deposit and a credit function.

**[Plautus *Curculio* 371-79 (#15)]**

For example, if we look at a passage from one of his plays called *the Curculio*, a character called Lyco, who is himself a banker, says at one point:

I seem to be blessed. I've drawn up a little account to work out how much money I have and how much I've borrowed. I'm rich, as long as I don't repay those who I owe. If I do repay my creditors, there's more around to borrow.

Between the Roman bank and the modern bank, there are of course striking differences—in technology, in their legal and regulatory positions and in the scope of their operations. The businesses of the Roman *argentarii*, as far as we can tell, were unincorporated, and were operated largely by individual proprietors, almost entirely free of government regulation. There was no state bank or central bank. Yet the ancient evidence and modern banking codes fix on the same basic factors in finding the necessary essence of a bank in its generation of revenue through loans funded by outside deposits, “those whom I owe”, as Lyco says, which the bank must return.

Now, the existence of a credit market in second century B.C. Rome has important implications. In any economy, good financial markets and appropriate financial institutions help people, who have ideas for production or for trade, to obtain resources to implement those ideas. Deposit banks are therefore normally part of a healthy market ecology.

This statement may seem strange to some, given the critical opprobrium heaped on banks and bankers in recent years. But without these markets and institutions, (or if they are impaired), the prospects for economic progress are far more limited, as the last five years have shown. The existence of credit creation mechanisms in the second century would have served to expand Rome's money supply and, thereby, to encourage an increase in effective demand. In other words a growth in bank lending would have led to an expansion in the volume of commercial transactions and activity.

And indeed we find a number of indications of this economic expansion in second century B.C. Rome for which money was the principal driver.

The major catalyst was Rome's defeat of the Syrian King Antiochus III and the huge war indemnity and the booty which the Roman commander, Manlius Vulso, brought back from Asia in 187. This tradition was still strong when Pliny the Elder was writing a couple of centuries later.

### **[Pliny the Elder (#16)]**

According to him:

The Roman people began to spray their cash around in the consulship of Spurius Postumus and Quintus Marcius (which was in 186 BC). So great was the abundance of money.

More generally, the Roman state's capital expenditure patterns during the twenty years that followed, in particular the intensity of building activity, appear to correlate closely with what we know about the inflows of revenue into the treasury and the state's financial position.

Basilicas, as well as harbour and retail facilities, were built in Rome, and the sewerage system was upgraded.

### **[Aqua Marcia (# 17)]**

Two new aqueducts, the Aqua Marcia -- the remains of which are shown here - and the Aqua Tepula, more than doubled Rome's water supply. Their construction suggests growing urbanisation, as increased supplies of water imply demand from larger numbers of city dwellers. The cost of the Aqua Marcia alone, which was built in the 140s B.C. and was 94 kilometres long, was 7,500 talents, making it the single most expensive building project undertaken during the Republic.

Construction projects such as these would have increased demand for labour and produced a Keynesian multiplier effect, making urban wages attractive relative to rural incomes.

### **[Roads (#18)]**

In addition, new expensive roads were constructed in Italy, and in Macedonia, Spain and the province of Asia later in the century. The creation of a road network, by the military for the military, had the economically beneficial side effect of allowing commercial traffic to move more efficiently. In fact Roman roads represented a development that was unparalleled in the world, with the exception of China, down to the development of the English canal system in the eighteenth century and the arrival of the railways in the nineteenth century.

They were of a uniformly high technical quality, capable of carrying wheeled vehicles with heavy loads. They promoted economic connectivity and integration because they helped the movement not only of goods and products but also of people, money, information, technology, and ideas. In turn they encouraged urbanisation by making money and markets more accessible. They would have overcome many of the transport constraints that affected most other ancient, medieval and early modern societies.

Another important engine of growth was trade, as it has been for many other countries at different stages of development.

For example, since 1950, there has been a colossal liberalisation of world trade, under the auspices of GATT and now the WTO, which has led to a massive expansion in the growth of world trade and acted as an important driver of world economic output. Since the 1950s, the volume of world trade has grown sixteen times (at an average compound rate of just over seven per cent per annum) and world GDP has expanded fourfold.

For the ancient world, shipwrecks can supply proxy information for levels of trade.

### **[Mediterranean shipwrecks (# 19)]**

With the increase in the popularity of scuba-diving in the last 60 years or so, there has been a sharp increase in the number of ancient Mediterranean shipwrecks which have been discovered, and which have subsequently been investigated by archaeologists.

This graph displays the number of ancient shipwrecks dating from each 50-year period, between 1500 B.C. and 1500 A.D. It reveals a steep increase in the number of wrecks in the second half of the second century B.C., and therefore presumably in the volume of shipping and of cargoes carried.

An overwhelming majority of the shipwrecks found in the western Mediterranean and dating to the last two centuries B.C. carried cargoes which mainly consisted of wine and olive oil amphorae from central Italy, and mainly destined for Spain and France.

### **[Types of amphorae (# 20)]**

We can date the 'take-off' in this trade in wine and olive oil fairly precisely. This is because there was a shift in the shape of amphora used to transport the wine, from one called Graeco-Italic, on the left, to a type called Dressel 1A, on the right. And this shift took place between about 150 and 130 B.C. The previous graph suggested that the volume of trade increased by something over 250%, because there are about two-and-a half times as many cargoes of Dressel 1 amphorae in wrecks dating from the century after 150 BC, as cargoes of Graeco-Italic amphorae in the preceding century.

But one thing that the previous graph does not take into account is the size of ships. After the invention of the bilge pump, probably in the last decades of the second century, it was possible to build larger ships. Before the late second century, ships carried a maximum of 75 tonnes of cargo, equivalent to about 1,500 wine amphorae.

The Albenga wreck, which sank in around 90 BC off the Italian coast to the west of Genoa, and which is estimated to have been about 500 tonnes, probably carried some 10,000 wine amphorae. Since each amphora contained about 26 litres, the cargo of this vessel must have totalled some 260,000 litres of wine (equivalent to about 350,000 modern wine bottles). These volumes suggest a very high degree of agricultural specialisation in central Italy where the cargo originated.

I would add that it is possible that it was not just wine and olive oil that was being exported from Italy, but other commodities as well. One of the main reasons why ancient wrecks are discovered is because of mounds formed on the seabed by the ceramic amphorae which formed their cargoes. The wicker baskets and sacks that carried other soft commodities would have perished on a wreck, along with their contents, and can no longer be traced.

### **[Map of movement of European silver (# 21)]**

If we look at other periods of history, we can see a direct link between expanding supplies of money and economic activity.

I have already mentioned the impact of New World bullion on the economy of sixteenth century Europe. Another example of this would be the commercial revolution of the thirteenth century A.D. Peter Spufford, a monetary historian of Medieval Europe, attributes the economic boom which occurred then to 'the link between silver-mining and the development of trade and industry'.

In the thirteenth century, central European silver moved from newly developed mining areas, such as Bohemia, Harz and Meissen, through Flanders and the Champagne Fairs to Italy, and then on to the eastern Mediterranean, and even as far as China.

In the other direction came luxury goods, items such as clothing and furnishings from Flanders and Tuscany; pepper and spices from Asia; silks from Constantinople and China. The increase in demand for luxury goods, backed up by the ready availability of large amounts of silver coin, brought about an enormous quantitative change in the volume of international trade.

### **[Delos (# 22)]**

A similar development in trade with the East seems to have occurred in the late second century B.C., with the emergence of the Aegean island of Delos as a centre of a trans-Mediterranean trade in slaves and luxury goods. The geographer and historian, Strabo, says that Delos was capable of handling 10,000 slaves per day. Pliny the Elder reports that the

island became a production centre for the perfume trade; a point reinforced by archaeological evidence for the existence of perfume factories there.

### **[Delos in its geographical context (# 23)]**

The international scale of the trade, based on Delos, is demonstrated by the evidence of inscriptions from the island which show that most of the merchants residing there originated either from Italy or from the eastern Mediterranean, with some of them coming from as far away as the Persian Gulf and south Yemen.

In his explanation of why Delos became the preferred location for the slave and perfume trade, Strabo identifies the ready availability of finance on the island as being one of the main factors. And his comment is supported by the evidence of inscriptions which mention bankers both from Italy and from the Eastern Mediterranean.

### **[The bankers on Delos (# 24)]**

The earliest known banker from mainland Italy is Marcus Minatius, who donated a large amount of money to a Delian association of merchants from Beirut in about 150 B.C. After him came two bankers called Gerillani; two named Aufidii; and at least three Fulvii -- all of these being Italian names. Finally, towards the end of the second century, a group of bankers dedicated a monument bearing this inscription: 'the bankers on Delos'.

I briefly mentioned slaves on Delos just now and I just want to add a further comment on the economic impact of slavery.

### **[Estimated population (#25)]**

Demographic developments in Italy during this period remain unclear and fiercely disputed, but there is little doubt that the import into Italy of perhaps somewhere between 2 million and 4 million slaves over the last two centuries BC, sourced through warfare and trade, gradually changed the demographic composition of peninsular Italy.

From an economic perspective, this inflow of slaves, who presumably were living at or close to subsistence, meant that labour input per head of population in mainland Italy would have grown, resulting in increased productivity. This was for the simple reason that enslavement forced victims to work harder at below the market rate for wage labour.

### [Summary (# 26)]

So, to conclude, we can identify three major developments in the Roman economy ahead of the credit crisis of 88 B.C.

Firstly, military conquest produced an extraordinary return on investment, as the accumulated surpluses of the Mediterranean and adjacent territories were grabbed by the Romans. This resulted in a boom in monetary liquidity at Rome, driven by large inflows of silver bullion from warfare, from mining and, eventually, from provincial taxation, much of which was eventually re-issued as silver coins.

Secondly, there is evidence from contemporary authors that Roman bankers created *pecunia*, or ‘money’, beyond the available supply of precious metals. As the numbers of professional bankers grew and the scale of their lending increased, there would have been an additional and, possibly, profound impact on the size of the Roman money supply.

Thirdly, the boom in monetary liquidity resulted in a major increase in economic activity. In my book, I estimate that real per capita GDP grew by a little over half a per cent per annum which is high by the standards of a pre-industrial economy.

This is evidenced by construction at Rome; by a sharp increase in the number of shipwrecks, by the trade in wine and olive oil to the western Mediterranean; and by the trade in slaves and luxury goods from the eastern Mediterranean.

This last development brought increased Roman commercial involvement to the Aegean and to the province of Asia and led to an increase in the geographic extent of the Roman financial system.

During the second half of the second century and the early first century B.C., bankers expanded their activities eastwards, creating the Asian monies, the *pecuniae Asiaticae*, the loans which Cicero describes as being at the centre of the financial meltdown of 88 B.C.

So the essential similarity between what happened twenty-one centuries ago and what happened to the UK economy in 2008 is that a massive increase in monetary liquidity culminated in problems in another country causing a credit crisis at home. In both cases, distance and over-optimism obscured the risk.

### [And finally (#27)]

Indeed the words spoken by “Chuck” Prince, the CEO of Citigroup, in July 2007, a year before the crash of 2008, could just as easily have been uttered by a Roman banker of the early first century B.C:

“When the music stops, in terms of liquidity, things will be complicated. But as long as the music is playing, you’ve got to get up and dance. We’re still dancing.”

**[Book cover (#28)]**