Monetary struggles within a Pax Romana

Lessons about Roman economy in the first three centuries A.D.

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1 Introduction

These days, many people worry about economic crises with all their consequences. Many brains have puzzled over the forces behind economics. We all try to grasp causes and consequences of monetary and fiscal policy. But because world economics is a complex matter, no simple solutions seem to exist. Today we build on the theories of men like P. Krugman, J.M. Keynes or Adam Smith. Although classical economics is dated from the publication of Adam Smith's *Wealth of Nations* in 1776 A.D.[1], I was curious about economics before this date. More precisely, I was curious about the economy of the impressive Roman Empire in the first three centuries of our era. At that time, the Roman Empire was ruled by Gaius Octavius Thurinus, known as Augustus. He became the sole ruler, Caesar, of the Roman Empire in order to 'restore The Republic'.[2] He formulated his aim in edict:

> May it be permitted me to have the happiness of establishing the commonwealth on a safe and sound basis, and thus enjoy the reward of which I am ambitious, that of being celebrated for moulding it into the form best adapted to present circumstances; so that, on my leaving the world, I may carry with me the hope that the foundations which I have laid for its future government, will stand firm and stable.[3]

His aim brought me to the main question 'Were Rome's monetary and fiscal decisions aimed at economic prosperity?' Even though the Roman Empire was not fully monetized, money was a wellknown phenomenon. Money had been introduced in Italy three hundred years earlier, in the form of rods or plates. But the government's reasons behind adopting coins might have been cultural, in that they wanted to adopt a Greek institution at a time when Roman society was coming under the increasing cultural influence of the Hellenistic (Greek) world. From that time on we notice a transition from a barter economy to a monetary economy. As more money came into circulation and economic possibilities grew this resulted in difficulties which were hitherto unknown. Roman Emperors now had to face and solve such difficulties as, for example, shortage of money and inflation.

Therefore, the object of this thesis is to give an historical-analytical analysis of the role of Rome's monetary and fiscal decisions in the first three centuries A.D. This object is divided into three problems, introduced as three 'questions'. Two questions on Roman monetary matters will be discussed in Chapter 2 and another question on Roman fiscal operations will be discussed in Chapter 3.

Our *first* question is: 'How was Rome's monetary system designed?'. To answer this question, I will introduce the Quantity Theory of Money. With the Quantity Theory of Money I try to explain how, according to classic economic theory, Rome's monetary matters affected the economy of the Roman Empire. This theory states that an increase in money supply must be met by an increase in prices or an increase in the number of transactions. Keeping in mind that an increase in prices will occur over longer periods of time, I will look at Rome's coin system. It will become clear that Rome's coin system was bimetallic, consisting of golden aurei and silver denarii. However, the variable supply of gold and silver meant the exchange rate between aurei and denarii differed.

[1] Landreth, H. & Colander, D.C. 2002, p. 26
[2] Blois, L. de & Spek, R.J. van de 2001, p. 212
[3] Seutonius 2006, Augustus 28

At the beginning of our era money had an intrinsic value. Changing the intrinsic value or reducing the weight of coins provides a monetary tool to raise government revenues or to change economic circumstances. This brought me to a *second* question: What are the consequences of this kind of seigniorage when the government, by minting coins, is also trying to fulfill an economic demand for intrinsically valuable coins? To be able to answer this question I will first introduce the concept of *seigniorage* itself. Because of the many coin devaluations, the Empire was confronted with a lot of different coin types. These different types of coinage influences the prevalence and existence of those coinage types. Therefore I close my answer on the consequences of seigniorage with the introduction of Gresham's Law that 'bad money drives out good money'.

Chapter 3 introduces our *third* question; 'How was fiscal policy designed?'. Because fiscal policy is defined as the use of government revenues and spending to influence the economy, I split the answer on this question in a description of government revenues as well as a description of government spending. The Roman government, embodied by the Emperor himself, retrieved its main revenues through seigniorage and tax collection. But the Emperor could also use more arbitrary ways such as the confiscation of properties or the sale of palace goods. This arbitrary fund raising could be especially necessary in times of fiscal stress; an example would be impending wars. Therefore I will close the answer on this third question with a review of the government budget balance.

Having analyzed Roman monetary and fiscal matters over the first three centuries A.D., I will present a summary and some conclusions in Chapter 4.

For this thesis I only used written sources. Even though it is impossible to empirically analyze the first three centuries of our era, ancient sources together with archaeological excavations give us sufficient leads to gain an understanding of these aspects of the Roman economy. Ancient writers like Seutonius, Cassius Dio and Tacitus, combined with excavated coin hoards, are the most important sources of evidence for this thesis.

2 Roman monetary matters

In the Roman Empire coinage was a wellknown phenomenon, at least to Roman Emperors and their civilian and military employees. This is illustrated by the fact that when a new Emperor came to power, it was expected that issuing his own coin was one of his first actions.[4] The Emperor can be seen as the embodiment of the Roman state and as such he was responsible for both monetary and fiscal matters. Coins issued by an Emperor belonged to the imperial coinage. Provincial coinage existed alongside official imperial coinage. Provincial coins played an important role as small change, used in daily transactions. The standard of these provincial coinages, controlled by provincial governors, was different from the official Roman standard. They were however exchanged at a fixed rate against official Roman coinage and therefore they could co-exist within the same circulation pool.[5] In this section I focus on the functioning of official imperial coinage.

In section 2.1 I will explain the main features of the Roman monetary system. Because Rome worked with a bimetallic coin system, there seems to be a temptation to create revenues by lowering the intrinsic value of coins. Therefore section 2.2 explores the role of seigniorage in the first two centuries A.D. But when different coins are available, people want to keep the ones with the higher value safe. This becomes clear when Caracalla issued the antoninianus alongside the denarius. To analyze this phenomenon, the scope changes from seigniorage in the second section to Gresham's Law in section 2.3. A summary of this chapter can be found in section 2.4.

2.1 Rome's monetary system

Because all Emperors issued one or more of their own coins, many different coins came into circulation. It even seems that coinage played an important role not only in economic terms but also in terms of morality or self-advertisement. We can read this in The Discourses of Epictetus, who lived in the first century A.D. He writes:

> For it is just the same as if a drachma asked to be recommended to a person to be tested. If he is skillful in testing silver, he will know what you are, for you will recommend yourself. We ought then in life also to have some skill as in the case of silver coin that a man may be able to say, like the judge of silver, "Bring me any drachma and I will test it."[6]

We also know that the Senate, which was pleased that the very cruel and vicious Emperor Caligula was murdered, melt down Caligula's bronze coins. Vitellius did the opposite and was 'magnanimous' in not destroying the coins of Nero, Galba and Otho.[7]

Along with morality, monetary matters have to do with economics as well; therefore the economic aspects of coinage in the Roman Empire will be discussed now. But to be able to be more accurate about economic prosperity in general,

[4] Duncan-Jones, R. 1998, p. 98
[5] Katsari, C. 2011, p. 74
[6] Epictetus 2.3
[7] Duncan-Jones, R. 1998, p. 98

I will first introduce the Quantity Theory of Money in the next section.

2.1.1 Quantity Theory of Money

While speaking about money and prices, we first treat the Quantity Theory of Money. This theory tries to explain how the quantity of money affects the economy.[8] As we have seen in the previous section, money and minting played an important role during the Empire. The Quantity Theory of Money states that the nominal quantity of money multiplied by the velocity of money is equal to the the price level of goods and services multiplied by the number of transactions of goods and services.

This is expressed in the following equation; M x V = P x T In this equation, **M** represents the quantity of **M**oney in an economy; **V** corresponds to the transaction **V**elocity of money, which measures the rate at which money circulates in the economy. **P** represents the averaged **P**rice of a transaction, whereas **T** stands for the number of **T**ransactions during the period of time under consideration. Finally, the Quantity Theory of Money assumes a constant velocity of money. So an increasing money supply must be met by an increase in prices or an increase in the number of transactions.

However, the number of transactions is a physical unit while prices are measured in terms of money. This is where the classical dichotomy between real and nominal variables comes into play. In classical economic theory, changes in the money supply do not influence real variables, so that an increase in the money supply must be met by an increase in prices only. But because prices do not rise immediately after a supply of money, an increase in the money supply at first, in the short run, increases the number of transactions while, over longer periods of time, it only increases the averaged price of transactions.

2.1.2 Roman coinage

As every Emperor issued different coins, it is not surprising that the Roman Empire contained an enormous variation in coins. Not only the issuer differs, also the metal, fineness and type of coin differs a lot.

Coins could be made from precious metals like gold or silver or from copper, bronze, zinc and so on. Because almost every Emperor issued his own coin, there are at least as many different coins as there are different Emperors. And if this were not enough variation, coins could also be made up of a mix of different metals.

As we will see, all these differences give opportunities for monetary policy. From the enormous coin variation I pick out the two coins which made up most of the mint output. Firstly we have the *aureus* which consists of gold. Secondly we have the *denarius* which consists of silver. The aureus was already known in 80 BC, but it was Julius Caesar who in 47 BC introduced gold minting on a large scale.[9] The denarius was already around since 217 BC, but it was Augustus who made it the Imperial unit of reckoning. Other coins can be seen

[8] Mankiw, G. 2007, p. 83 and Katsari, C. 2011 and Krugman, P. et al. 2008
[9] Duncan-Jones, R. 1998, p. 99 and Wassink, A. 1991

as token coins, even though they played, like provincial coinages, an important role in daily transactions.

The timespan of my thesis starts with Augustus' rise to power. Augustus' policies were so thoughtful that they must have been an example for following Emperors.[10] Therefore it is important to first reflect a little longer on Augustus' position and his policies.

In 27 B.C. Augustus became the sole ruler, the Caesar, of the Roman Empire in order to 'restore the Republic'.[11] After fighting the last civil war[12] against Egypt in 30 BC Augustus became the sole ruler of the Empire. This civil war against Egypt brought Augustus immense riches. In the first place, Egypt became an important source of grain supply.[13] And in the second place, the very extended tax system of the Egyptians became profitable in the long run.[14] Augustus used these riches to satisfy the people by celebrating the last three victories. He gave magnificent gifts of money to each member of the Roman plebs[15] and two and a half times as much to praemia.[16] Last but not least, also gladiatorial shows were part of the celebration and remained one of the many public entertainments.[17]

In the first three centuries AD Augustus' power found expression in the so called Principate.[18] In fact, however, The Principate includes elements from the earlier monarchy with elements from the republic. The Senate had an advising role to the king during the monarchy. During the Republic it had the power to give orders to the ruling magistrate. But within The Principate Augustus' authorities had to be transferred by the Senate and the people, where the Senate was appointed by Augustus. This shows a mixture between the earlier monarchy and the Republic.[19] Since that time the main tasks of the Caesar were to conduct war, administer justice and fill all positions.[20] Because Augustus had 'restored the Republic' he was seen as the founding father of the Roman Empire, which probably is the reason that he sought to please his people through shows and huge sums of money.

As the founding father of the Roman Empire, Augustus was also the first Roman Emperor who introduced a coherent bimetallic coin system based on gold and silver coins. To create a coherent bimetallic coin system, Augustus changed the silver sestertius into a bronze one, turning the former standard coin into a

[10] In the course of this thesis we will see examples of policies which are similar to Augustus' policies. Wassink, A. 1991, 473

[11] Blois, L. de & Spek, R.J. van de 2001, p. 212

[12] That is to say, the last civil war in decades.

[13] Other important grain suppliers were North Africa and Sicily

[14] Blois, L. de & Spek, R.J. van de 2001, p. 214 and Lane Fox, R. 2006, pp. 267-8

[15] The plebs were the members of the concilium plebis, the Plebeian Council. This was an assembly of the citizenry Lane Fox, R. 2006, p. 287

[16] These *praemia* were paid to soldiers who served 25 years or more in the army. Katsari, C. 2011, p. 37 and Lane Fox, R. 2006, p. 441

[17] Public entertainments included theater, dance, music, public baths, chariot racing and different sorts of violent sports. Lane Fox, R. 2006, pp. 460-64

[18] Not until 293 A.D. Diocletian brought about an extensive imperial reform of the Principate. In the early fourth century this was continued by Constantine. Sesam Atlas 2007, pp. 100-2

[19] Sesam Atlas 2007, p. 93

[20] Blois, L. de & Spek, R.J. van de 2001, p. 229

Table 1: Monetary System in Roman Empire around 14 AD

Name of coin	Weight	Equivalent to
Aureus	appr. 8 grams gold 98.33%	25 Denarii
Denarius	appr. 3.9 grams silver 97.5%	4 Sesterii
Sestertius	appr. 27.3 grams bronze	2 Dupondii
Dupondius	appr. 13.65 grams bronze	2 Asses
As	appr. 10.92 grams copper	

Sources: Katsari, C. 2011, 72 and Wassink, A. 1991

token coin.[21]

A bimetallic coin system can be defined as one in which coins of two different metals (usually precious metals) are legal tender. Roman government gave them an official exchange rate which to some extent reflects their intrinsic value. The nominal value of a coin was determined by the stock of money and the general price level of the precious metals.[22] In the next section we will see the advantages and disadvantages of the difference between the official value of a coin and its intrinsic value.

At the beginning of Augustus' reign the official monetary system consisted of four major currencies, shown in Table 1. The official standards of the aureus and the denarius are expressed in terms of target weights and finenesses. The target weight of a coin concerns its official weight, whereas the fineness of a coin concerns the percentage (precious) metal the coin contains. For example, one aureus weights 8 gram and contains 98.33% gold. This means that an aureus contains 7.9 gram gold and 0.1 gram other material.

First we will have a look at the target weights. After examination of several coin hoards Duncan-Jones comes to detailed lists of (tentative) target-weights of aurei and denarii.[23] These figures are tentative because of the small size of gold hoards. I used this information to create Figure 1 and 2, which represent weight changes over time.

[21] Before Augustus reign the silver denarius existed alongside with the silver sestertius in an incoherent system. Wassink, A. 1991, p. 470

[22] Katsari, C. 2011, p. 80

[23] Duncan-Jones, R. 1998, pp. 213-37

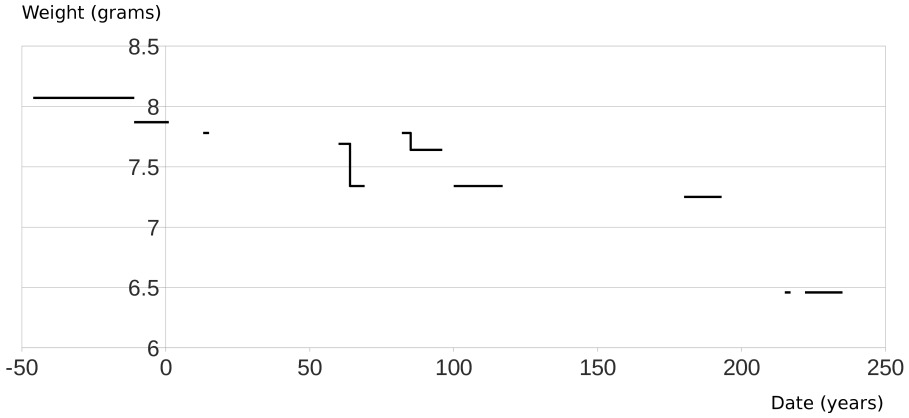

Figure 1: **Target weight of the aureus.** Based on Duncan-Jones, R. 1998

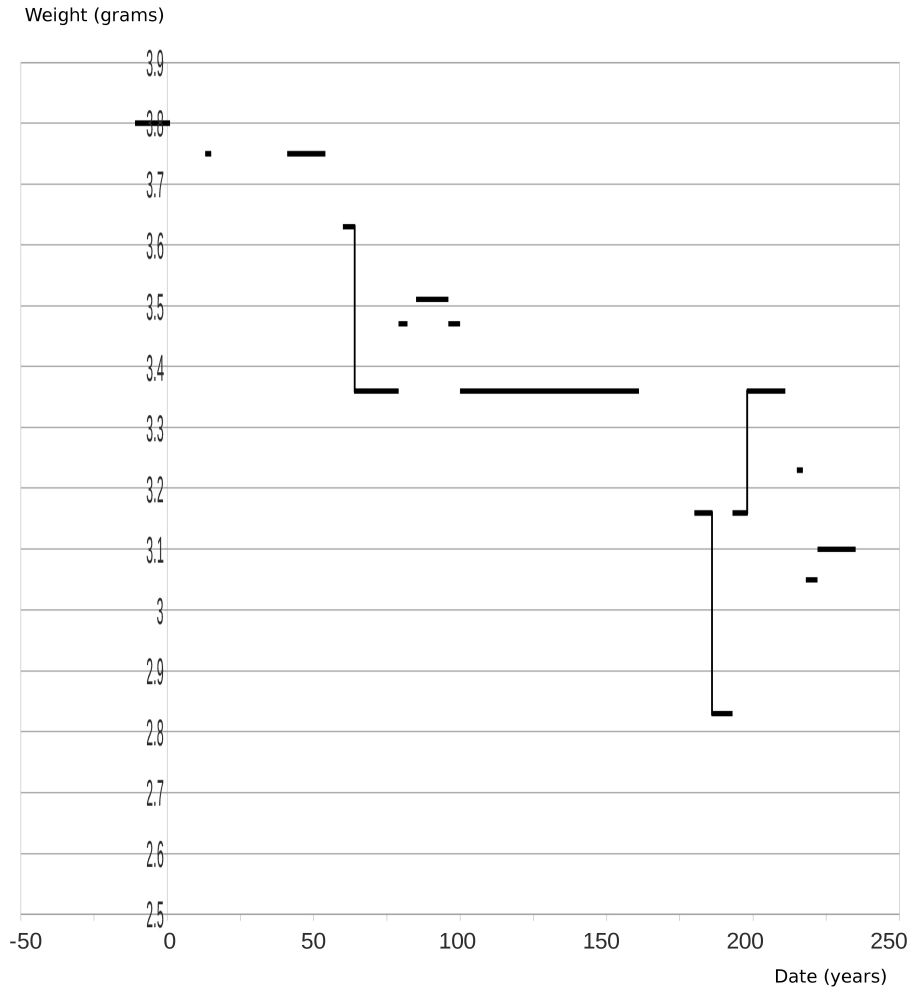

Figure 2: **Target weight of the denarius.** Based on Duncan-Jones, R. 1998

To understand the meaning of a target weight, it is important to know that the mint struck a certain amount of coins from one (Roman) pound of metal. A pound of metal was formed into a metal rod, out of which sliced coins were struck. If an Emperor wants to decrease the value of a coin, he could do this immediately by decreasing the target weight. In that case more coins could be struck from a Roman pound of metal.

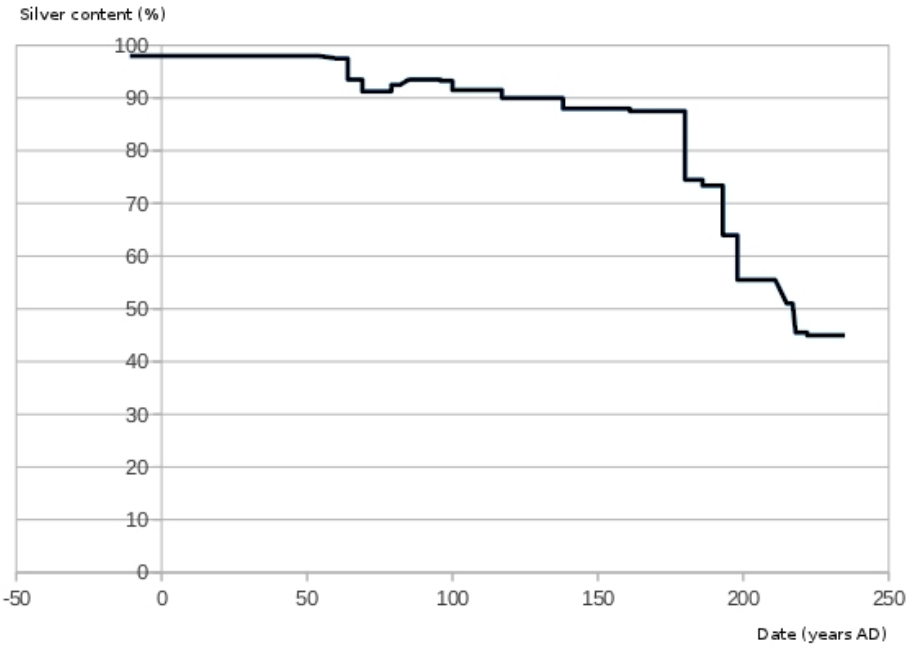

Figure 3: **Silver fineness of the denarius.** Based on Duncan-Jones, R. 1998

To change the fineness of a coin however, the fineness of the metal rod had to change. In that case new rods had to be made or the existing rods had to be melted. Both methods were used to manipulate the value of a coin. However, the ratio of fineness to weight in the denarius remained largely unchanged during the first two centuries of the Roman Empire.[24] In comparison with the denarius, the weight of the aureus underwent relatively little change.

Overall, the aureus was struck at a greater accuracy than the denarius. As the circulation of the aureus was slower than that of the denarius, it was also less subject to wear. As the fineness of the aureus remained unaltered, the fineness of the denarius was manipulated in order to maintain the position of the aureus. Therefore the aureus can be seen as the major coin of the imperial monetary system, while the denarius maintained its position as a unit of reckoning.[25]

Figure 3 shows how the fineness of the denarius changed over time. In the course of this chapter I will highlight important points of this graph. When the target weight or fineness of coins was reduced, this was not immediately visible. We have already seen that testing silver required some skills. Old coins were

[24] Duncan-Jones, R. 1998, 225
[25] Duncan-Jones, R. 1998, p. 215 and Wassink, A. 1991, p. 476

already a little bit worn, so the reduced fineness or target weight of new coins was difficult to distinguish. Therefore the process of manipulating the value of a coin took place in a slow and obscure fashion. Now the question arises as to what purpose the Roman government manipulated the value of money. In the next section I will try to answer this question.

2.2 Seigniorage

In the Roman Empire, payments took place in money and in kind. To be able to spend money a government, especially in the time when the Empire was not fully monetized, needed to mint money, striking coins. Nowadays, revenue raised by printing money is called *seigniorage*.

When a government prints money it increases the money supply. This means that more money comes into circulation, making money less scarce. So money devaluates and people have to pay higher prices for the same goods.[26] In fact, a government can create revenue for itself by printing new money. But the holders of money pay for this new money because they have to pay more for the same goods while the government can pay its debts with the newly issued money.

Therefore, printing money to raise government revenues is like imposing an inflation tax. Printing money to finance expenditure is also a primary cause of hyperinflation.[27] Governments can be forced to print money when tax revenues are inadequate. When a government also finds itself unable to borrow money from others (issue debt), it could find itself obliged to print money. This shows that hyperinflation has to do with both monetary and fiscal policy, that is, with the money supply and with government revenues.But before I start my analysis of inflation in the Roman Empire, I want to draw some attention to one last issue; a definition of inflation and hyperinflation.

Is it sometimes assumed that in the Roman Empire hyperinflation occurred at the end of the third century. In general, inflation is an overall increase in prices over time. Hyperinflation however is often defined as inflation that exceeds 600% per annum. The Roman Empire was nowhere near this figure in the first three centuries. Although there was no hyperinflation according to modern measurements, there was inflation in the Roman Empire in the first three centuries A.D. Name it inflation or hyperinflation, we will try to grasp the mechanism behind the Roman economy.

2.2.1 Under Augustus

Before 30 BC Rome had gone through several civil wars. This period of war meant that military expenses increased, a lot of people died and land was looted.[28] Among other things more and more people in the Roman Empire discovered the advantages of having denarii, so in 30 B.C. a shortage of money developed. People demanded money while a lot of money was spent on army pay. When Augustus came to power, he spent large sums of money. In the

[26] See also the explanation of the Quantity Theory in Section 2.1.1. It states that an increase in the money supply must, on the long term, be met by an increase in prices only.

[27] Mankiw, G. 2007, p. 90

[28] Lane Fox, R. 2006, p. 511

first place, this expansionary policy should be connected with his propaganda method; Augustus had to restore the Republic and was called "the illustrious one"[29]. But secondly, Augustus' policy seemed to be favorable from an economic perspective and we will see that it inspired later Emperors as well.

In the very beginning of the first century A.D. sufficient money came into circulation resulting in economic progress.[30] However, when we reason in line with the Quantity Theory of Money, it must follow that economic progress, as a result of an increased money supply, could not last long. When the money supply increases, this will at first be compensated by an increase in the number of transactions. More people were given the opportunity to use coins instead of exchanging products. But on the long term prices will increase as well, offsetting the effect on the number of transactions. Although this seems logical, we will see that it is not the only possible scenario.

Augustus' large spending program, which functioned as a kind of money supply[31], initially had a positive effect on the economic activities within the Empire. Except for the fact that it was at the expense of the government budget. This resulted in shortage of funds under Augustus and his successors Tiberius and Caligula. Because Augustus had enough funds when he started his reign[32], seigniorage seems not to have been a significant issue. Together with the fact that the Roman Empire was not fully monetized, it seems logical that Augustus wanted to meet the growing need for coins. But when booty became exhausted[33], it seems that for this reason minting under Tiberius and Caligula had been low. Taking prices under Augustus' reign as base value, Wassink concludes that price level decreased by at least 15% about fifty years later, at the time of Nero's reign.[34]

So, at the time of Nero's reign, prices did not rise as we expected. Instead, the price level decreased despite the fact that Augustus brought a lot of money in the economy. It could be that, although the Quantity Theory assumes the velocity of money to be constant, money came into the scope of more people so that its velocity decreased. Or in other words, economic activities decreased.

2.2.2 In Nero's time

Having pointed to the time before Nero, I now want to focus on Nero's reign itself. During his reign, great parts of Rome were destroyed by a six day fire in A.D. 64. From 62 onwards Nero spent huge amounts of money on periodic distributions of grain and money among the public and on the provision of impressive public spectacles. Beside this, he started an extensive, privately funded construction and building program to rebuild Rome. It seems that he copied Augustus' financial policy in all aspects.

Nero also reformed the monetary system in order to improve the financial policy system. He manipulated the target weight of both the aureus and the denarius together with the fineness of the denarius in such a way that the altered

[29] Latin 'augustus' means something like venerable, illustrious.
[30] Wassink, A. 1991, pp. 473-3
[31] The Emperor could increase the money supply by conquering neighboring countries. Such conquests yielded booty, such as gold and silver.
[32] Remember the immense riches from Egypt, see Section 2.1.2
[33] That is to say, gold and silver became exhausted so that less coins could be struck.
[34] Wassink, A. 1991, p. 474

relation between both (an aureus equals 25 denarii) was restored.[35] As we have seen in section 2.1.2, in practice only the target weight of both coins could be changed immediately. The fact that he spent huge amounts of money from his own funds shows that Nero was in need of money. Therefore it is probable that he changed the target weight of both the denarius and the aureus to finance his expenditures. If Nero's main purpose was to maintain a 1:25 gold:silver ratio, he would have changed only the value of the denarius. But he changed both coins, giving leeway for revenues from both aurei and denarii minting. This view is strengthened by the fact that Nero moved the mint from Lugundum to Rome, so that his control over the minting process increased.[36]

Nero's output of aurei and denarii was enormous, with Vespasian and Titus keeping up the pace of large scale minting.[37] Because of this extensive minting, a developing shortage of precious metal is probable. This view is supported by the fact that Domitian, Trajan and Hadrian withdrew large quantities of silver coin to melt them down for re-minting.[38]

2.2.3 During Septimius Severus' reign

A little less than a century later, the Roman Empire was confronted with military crises, plagues and revolts. Many of the population died and for the first time since the reign of Augustus the economy started to decline again.[39]

In an attempt to reverse the trend of crises, plagues and revolts, Septimius Severus had to mint large issues of money to finance three new legions in the army. Furthermore, he gave six congiaria[40], extravagant games and free medicine for the poor. He started a building program in Rome, spent large amounts on road repairs and payed the postal service himself.

At the same time Septimius Severus tried to reorganize the monetary system once more. Again a comparison can be made with Augustus' reign together with Nero's reign. To finance his expenditures, Septimius Severus was also in need of money. But Septimius Severus was confronted with a falling price of silver, while until now the price of silver had only risen. Gold on the other hand had long been relatively scarce, but became abundantly available after the 199 AD Parthian war brought in a lot of gold in booty from the royal Parthian treasure. This gold however was not only used to mint coins. Gold was used for all kinds of luxury goods as well.[41] Accepting the view that there was economic prosperity at the end of the second century[42], it is well conceivable that gold was also used to decorate buildings and to create all kinds of decorations.

So a falling price of silver together with a falling price of gold asked for a different policy, because it was no longer possible to decrease the silver content

[35] Wassink, A. 1991, p. 474
[36] Duncan-Jones, R. 1998, p. 100
[37] Duncan-Jones, R. 1998, p. 31 and Hopkins, K. 1980, p. 115
[38] Duncan-Jones, R. 1998, p.198
[39] Because of a long period of peace people had spent their money on luxury like impressive buildings and entertainments. This left them with increasing maintenance costs, while wealth concentrated in fewer hands. Blois, L. de & Spek, R.J. van de 2001, p. 264 and Wassink, A. 1991, p. 477
[40] Congiaria are civilian handouts from the Emperor, usually given on specific events. See further section 3.2.2 on page 19.
[41] Jones, A.H.M. 1953, p. 300
[42] Blois, L. de & Spek, R.J. van de 2001, p. 265 and Wassink, A. 1991, p. 479

of a denarius to maintain the 1:25 ratio.[43] If it was so very important to keep this ratio, Roman government had to raise the silver content of the denarius. But under Septimius Severus we see that increasing government revenues was the main purpose of coin manipulation. The Empire needed money, in particular to finance its army. As we will see in more detail in the next chapter, army pay was a great issue on the government budget. This became an even bigger part because of considerable increases in army pay. When all these were paid in coin, the Roman state needed money on a large scale.

Though army pay be the primary reason or not, mint output more than doubled under the reign of Septimius Severus.[44] But although a lot of money came into circulation, probably intended to stimulate economic prosperity, maintaining the bimetallic system became more and more difficult. Because of an increased tax burden, changed relationships between different groups of society and increased threats of war an unstable political climate set in.[45] This came to light in half a century of Barracks Emperors, rapidly succeeding one another.

2.3 The role of Gresham's Law

Having seen the role of seigniorage in these two centuries, I now want to show how Gresham's Law comes into play. As we will see, this law helps us to understand the history of Caracalla's *antoninianus*. First I will dedicate some words to Gresham's Law itself and after that I will place the history of the antoninianus in this perspective.

2.3.1 Gresham's Law

Sir Thomas Gresham, a sixteenth century merchant, noticed that 'bad money drives out good money'.[46] I used the word 'noticed' because Gresham never claimed his notion to be a law. According to this law, coins which are not debased are seen as good money while debased coins are seen as bad money. At one point of time, governments can decide to change the value of (one of) its coins. In doing so, they create two identical coins, but with a different value. In such a case, Gresham noticed that people want to save the ones with the higher value. They will pay only with the devaluated coins, keeping the other ones for themselves. So the older coins which have a higher value will be hoarded, disappearing from circulation.

2.3.2 ... applied to the antoninianus

Because it became more and more difficult to maintain the bimetallic system, Septimius Severus' son Caracalla issued a new coin and called it the *antoninianus*. The fineness of this antoninianus was 51%, just like that of the denarius.[47]

[43] To the people this could appear to be a legal reason to manipulate the value of coins, while for the Emperor increasing government revenues could have been the main purpose.
[44] Duncan-Jones, R. 1998, pp. 133-2
[45] Blois, L. de & Spek, R.J. van de 2001, p. 265
[46] Katsari, C. 2011, p. 85 and Wassink, A. 1991
[47] Jones, A.H.M. 1953, p. 296

But its weight was 1.5 times more than the denarius, so according to weight it should be exchanged at 1.5 denarii. However, in practice it seems that it was exchanged at 2 denarii.[48] This makes the antoninianus a highly overvalued coin.

At first glance the introduction of the antoninianus may look like a renewed attempt to restore the altered relation between the aureus and the denarius. It seems that Caracalla tried another method to save the official 1:25 ratio between a silver coin and a gold coin. However that may be, it certainly brought new revenues to the state because more coins could be struck from one piece of silver. Around 215 A.D. the antoninianus accounted for about 50% of Caracalla's silver output.[49] Together with the fact that coin output increased considerably, the state's revenues must have increased enormously.

Through Caracalla's reform the Empire was faced with a highly debased denarius and a new coin with an even lower value.[50] Because people observed that the value of coins changed at least as fast as Emperors changed, it is likely that they preferred to dispose of their debased coins as soon as possible.[51] When the intrinsic value of an antoninianus was 1.5 times as much as the intrinsic value of a denarius while the nominal value was 2 times as much, it became very profitable to exchange denarii for antoniniani. Therefore it is likely that the demand for antoniniani increased, so that the antoninianus became the major coin in the Empire.

An increasing demand for antoniniani caused the Roman mints to increase their antoniniani output as well. To get resources to mint new coins, people could exchange their denarii at Roman mints. Therefore denarii disappear not only from circulation, but also from hoards. Excavation and hoard studies show that denarii disappeared from circulation between A.D. 240 and 274.[52] Figure 4 shows how the antoninianus looked like in this period.

Figure 4: **Decline of the antoninianus.** Source: Wikipedia

2.4 Summary

The decline of the denarius is one example of the struggles of the Roman Empire in maintaining its monetary system. We started this Chapter with a brief description of the Quantity Theory of Money. Assuming a constant velocity of money, it stated that an increase in the money supply will cause an increase in the number of transactions. On the long term however an increase in the money supply will cause only prices to rise.

[48] Katsari, C. 2011, p. 79
[49] Duncan-Jones, R. 1998, p. 142
[50] Remember a fineness of 98% in the time of Augustus against a fineness of 51% in Caracalla's time.
[51] Katsari, C. 2011, p. 133
[52] Katsari, C. 2011, p. 131

To be able to elaborate this theory further, I introduced first the Roman coin system. Rome worked with a bimetallic coin system. The main coins were the golden aureus and the silver denarius, established by Augustus. Augustus was an Emperor who tried to 'restore the Republic', which led himself to spent huge amounts of money to satisfy the people and his subjects. We expected that, according to the Quantity Theory of Money, this increase in the money supply caused prices to rise on the long term. But because the Roman Empire was not fully monetized, it seems that the assumption of a constant velocity of money must be doubted in this case. In Nero's time, about fifty years after Augustus reign, prices decreased while the government budget could not keep up the pace of his large scale expenditures. In order to improve the financial system, Nero changed the value of aurei as well as denarii, giving leeway for revenues from both aurei and denarii. More than hundred years later Septimius Severus did the same.

In the last section we saw Gresham's Law at work in the regularly changes in the weight and fineness of aurei and denarii. Gresham noticed that 'bad money drives out good money'. Among the many changes I took the antoninianus as an example of one of the consequences of changing the value of coins. The antoninianus became the major coin in the Roman Empire, replacing the denarius.

3 Roman fiscal operations

On the way to this part of my thesis, we already touched some items on the government budget. Before going into detail about the various items on the Imperial budget, I will touch on the fact that the Emperor could use two different budgets. One was his own *fiscus* and the other was the imperial *aerarium*. In practice however, the fiscus could be complemented with the Emperor's own finances. Tacitus wrote in Annalis 6.2

> ...and the property of Sejanus was to be taken from the exchequer and transferred to the imperial treasury, as if there was any difference.

So there was no real barrier to what the Emperor could spend. Therefore I take these budgets together and continue to write about one Imperial budget. In this second chapter of my thesis I want to have a closer look at Rome's fiscal policy. So in section 3.1 I will show how the Emperor obtained his revenues. Then I will show in section 3.2 how Emperors spent their budget. Where possible I will give attention to the relation between Rome's government budget and monetary matters. I close my answer on the Imperial budget with a review of the government budget balance. A summary of this chapter can be found in section 3.4.

3.1 Government revenues

Revenues can be obtained in many ways. A clear example is by way of taxing. In section 3.1.1 I will explain the working of the Roman tax system. In section 3.1.2 I will discuss other ways of fundraising.

3.1.1 Tax system

After a long period of wars, at the beginning of our era people knew the advantages of having money. Money had an intrinsic value which could not be damaged by harvest failures or by marauding soldiers. But in order to get money, people had to market their products. Together with paying tax in money instead of paying it in kind, a new economic stimulus proceeded.[53]

First we will see how tax went from the taxpayers to the Emperor. The Republic was divided into senatorial and imperial provinces. Senatorial provinces were ruled by proconsuls sent by the Senate, although the Emperor had always the supreme power. Provinces with military legions (like Gaul, Syria and Hispania Tarraconensis) were always imperial provinces. New provinces also became imperial provinces.[54] At the top of a province was a proconsul. He had to rule the province and command the army.[55]. He was assisted by quaestors in senatorial provinces or by procurators in imperial provinces. They both had the same responsibility: to oversee the expenditures and the tax-collection. This tax-collection was based on Augustus' decision to census individuals and property.[56] Egypt, also a province of the Empire, had a different government based

[53] Wassink, A. 1991, p. 472 and Katsari, C. 2011, pp. 108-9
[54] Blois, L. de & Spek, R.J. van de 2001, p. 213 and Lane Fox, R. 2006, p. 511
[55] In times of peace the army could also be of help in carrying out major building projects
[56] Lane Fox, R. 2006, p. 513 and The gospel of Luke, Ch. 2:1-2

on its own solid bureaucracy. The Romans used this solid foundation to their own profit. Because of Egypt's solid and well documented bureaucracy, Egypt provides the one practical example of how Rome taxed its provinces.[57] Unfortunately, Egypt is such an exceptional example that it could not be applied to the Roman Empire as a whole.

Now we have seen the general route of tax, I will go on with different taxes. One important difference is the difference between direct and indirect taxes. Indirect taxes were all kind of toll and duty impositions like harbor-dues. Direct taxes were imposed on land and on individuals, where land could be private or public. Public land belonged to the Emperor and is therefore also known as crown land or imperial land. Public land however was not as intensively cultivated as private land. It increased for example through land confiscation[58] of condemned people or because deceased people bequeathed land to the Emperor. Public land was taxed much more heavily than private land. Average rates for public land were 4.13 artabas per aroura where rates for private land were 1.29 artabas per aroura.[59] As an illustration, we know of Emperor Pertinax (193 A.D.) who tried to create revenues by giving away unused public lands to private owners. These private owners got ten-year immunity from taxation which had to compensate for the fact that public land was taxed much more heavily than private land. In this way Pertinax hoped that future taxes would compensate for this short-term loss of tax.[60] The other direct tax was the poll-tax. It is beyond the scope to explain how the poll-tax worked exactly, but the level of taxation differed between Roman citizens and Roman inhabitants. So when Caracalla (212 A.D.) extended Roman citizenship to all free inhabitants of the Roman Empire, this brought new amounts of tax to the public treasury.[61]

3.1.2 Other revenues

The tax was a continuous source of revenues. Manipulating tax could affect future revenues. But in times of fiscal stress, Emperors could also meet their demand for revenues at short notice. We have already discussed the revenues of manipulating coin values (seigniorage) in section 2.2. Without being complete, I will give two more examples. First, Emperors could get money from properties of condemned people. In general, rich people could be condemned in case of social misbehavior. In such cases, legislation provided the accuser with substantial rewards. Under fiscal stress accusations could be directly instigated by the Emperor.[62] Therefore times of war often brought the downfall of rich families. A second way of increasing the government revenues was by way of a sale of palace goods. I illustrate this with a quote from Cassius Dio, a Roman consul and a noted historian.

[57] Duncan-Jones, R. 1998, p. 47

[58] I will come back on this in the next paragraph.

[59] *Artabas per aroura* is a Egyptian term used to describe land revenue. 1 Aroura was 100 Egyptian cubits, where 1 Egyptian cubit was 52.3 cm. Herodotus 2.168 and Scott, N.E. 1942, p. 70 The exact meaning of artabas is difficult to specify.Duncan-Jones, R. 1998, pp. 48-50

[60] Katsari, C. 2011, p. 61 and Blois, L. de & Spek, R.J. van de 2001, pp. 216-18 and Lane Fox, R. 2006, p. 513

[61] A while before he changed some related taxes as well, so that more people came within the scope of these taxes. Duncan-Jones, R. 1998, p. 16 and Blois, L. de & Spek, R.J. van de 2001, p. 265

[62] Nero and Caligula are two examples of such misbehavior. Duncan-Jones, R. 1998, p. 6

> On one occasion when, with wars impending, he [Marcus Aurelius] found himself at a loss for funds, he neither devised any new tax nor brought himself to ask anyone for money, but instead exposed in the Forum all the heirlooms of the palace together with any ornaments that belonged to his wife, and urged any who so desired to buy them. In this way he raised funds which he paid to the soldiers. Then, after winning the war and gaining many times the amount in question, he issued a proclamation to the effect that any one of the purchasers of the imperial property who wished might return the article purchased and receive its value. Some did this, but the majority declined; and he compelled no one to return to him any object that had been thus acquired.[63]

3.2 Government spending

Estimating Rome's government spending is a very hard job. Although there is no detailed information about all aspects of government expenditure, it is possible to roughly estimate it. To do this, I will start with defense spending. In the next section I will go into detail about defense spending, followed by a second section on nondefense spending. The Table below supports the preceding discussion.

Table 2: Estimates of the Empire's budget, in million sestertii

Category	Budget in 150 AD	% of total	Budget in 215 A.D.	% of total
Army	643-704	72-77	1,127-1,188	74-77
Bureaucracy	75	7-9	75	5
Handouts	44	4-5	140	9-10
Buildings	20 - 60	2-6	20 - 60	1-4
Other items	50 - 100	6-10	100 - 150	7-9
Total	832 - 983		1,462 - 1,613	

Source: This Table is an estimation, according to Duncan-Jones (1998)

3.2.1 Defense

As may be clear by now, the bulk of the Empire's budget was spent on the Roman army.[64] The army costs consisted of salaries (*stipendium*), discharge costs (*praemia*) and gifts[65] (*donativa*). The stipendium differed according to the military body to which soldiers belonged; legions, auxiliaries or praetorians. Soldiers who served in the legions were recruited from Roman citizens, while soldiers who served in the auxiliaries were recruited from the provinces. The praetorians had to protect the Caesar, the capital Rome and Italy. Praemia were given to those who survived at least 25 years of army service. Donativa were given on a regular basis, in kind or in cash.[66]

Although there is information about army service itself and its related costs, we must be satisfied with only an estimation of its complete budget. Duncan-Jones comes to a tentative figure of 72% - 77% of the total budget. See Table 2.[67]

[63] Dio. 72 fr.

[64] Katsari, C. 2011, p. 36, Finley, M.I. 1975, p. 90 and Duncan-Jones, R. 1998, p. 45

[65] Gifts are counted together with congiaria as handouts. So they are no part of the army salaries.

[66] Duncan-Jones, R. 1998, p. 30, 35 and Blois, L. de & Spek, R.J. van de 2001, p. 222 and Katsari, C. 2011, p. 37

[67] Duncan-Jones, R. 1998, p. 45

But according to Katsari, in times of peace about 33% of the budget was spent on army costs while in times of war about 50% of the budget was spent on the army.[68] Katsari's suggestion of a period of peace however is difficult to specify. From Augustus until the end of the second century there was an armed peace between the Romans and the Parthians.[69] Although from Augustus until 161 A.D. the Roman Empire never had to fight wars in several sectors at once, they did try to expand their Empire several times. Even in times of war silence, there were garrisons in the imperial provinces at the the outstretched borders of the Roman Empire. Not only did they protect the borders, but they could be helpful as well in carrying out major building projects. In order to keep military unrest under control, army wages increased several times. The Emperor had to remain on good terms with the army because otherwise neither the safety of the Empire nor that of the Emperor could be guaranteed. The army therefore was in a highly important position, which argues for a budget of at least 50%, rather than a budget of 30-50% of Imperial expenditure.

3.2.2 Nondefense

Although the army absorbed most of the budget, other items asked for funds as well.

Handouts In the previous chapter we saw that Emperors were more or less obliged to provide men with handouts like congiaria.[70] Handouts were usually given at specific events, such as the accession of a new Emperor. These handouts went to privileged recipients who were already receiving regular payments.[71] Together with military donativa the Emperor also handed out civilian congiaria. Congiaria seem to be at least as much as donativa.[72] Usually these handouts came at the same time, according to ancient writers and to coin hoard evidence.[73] Figures on congiaria spending can be estimated reasonably well. This is more obscure for donativa. When assuming that donativa were at least as much as congiaria, handouts can be estimated between 40 million sestertii around 150 A.D. and 140 million sestertii around 215 A.D. As can be seen in Table 2, handouts thus increased with at least 4%. But both donativa as well as congiaria could be paid in cash as well as in kind.

Bureaucratic Mechanism Another large part of the Imperial budget went to the bureaucratic mechanism. Within Rome's bureaucracy a proconsul was at the top of a province. He had to rule the province and command the army. He was assisted by quaestors in senatorial provinces or by procurators in imperial provinces. They both had the same responsibility, namely to oversee the expenditures and the tax-collection. Analyzing career inscriptions makes clear that there were 136 procurators at the death of Commodus (192 A.D.) and 174 at the death of Septimius Severus (211 A.D.). However, we have no

[68] Katsari, C. 2011, p. 37
[69] Blois, L. de & Spek, R.J. van de 2001, p. 227
[70] See section 2.2.3 on page 12.
[71] Katsari, C. 2011, p. 50
[72] Duncan-Jones, R. 1998, pp. 86-7
[73] Duncan-Jones, R. 1998, pp. 40, 86, 248

exact evidence about the size of their salaries. The only fact we know is that the proconsulship in Africa was worth HS1 million under Macrinus (217 AD). Taking this as starting point and using job hierarchy differences, Duncan-Jones (1998) estimates total civilian salary-cost as much as HS74.8 million. It seems that the bureaucratic mechanism itself did not change much during the first two centuries. Since Augustus tax collection was for example based on estimated revenues of land. In 293 Diocletian brought about an extensive imperial reform, including a reform of the tax system.[74] Diocletian refined the tax system so that, to continue with our example, land became taxed according to its surface, the quality and the number of people who worked on it. But his refinements asked for more employees to collect and control the tax.[75]

Buildings There existed a vast scale of Imperial building expenditures. We know of the construction of two aquaducts (in 38 and 52 A.D.) which cost HS350 million. Or just remember how many Emperors continued to rebuild Rome after its destructive fire in 64 A.D. In 82 A.D. Domitian spent HS288 million on the building of the Capitol in Rome. An interesting issue is the building of public baths. Although public baths were known since the second century B.C., those built by Trajan, Caracalla and Diocletian are particularly interesting because of their huge size. This could be an indication of increasing wealth or an increasing Imperial budget which allowed for this luxury buildings. But the few extant cost figures are not enough to provide us with real guidance for the ordinary level of spending. Some imperial buildings can be reconstructed from their physical remains.[76]

Other Items To complete the Imperial budget, I close with issues that count as 'other items'. Because a lot of expenditures are unknown to us, 'other items' has to be estimated very roughly. To illustrate the diversity of this item, I will discuss three issues. Firstly, Emperors were by far the wealthiest men of the Empire. Their spending must have been enormous; both Pliny and Seneca give us a glimpse into the costs of dinner parties, pictures or tableware. But the exact figure of the Emperor's domestic spending remains unclear. Secondly, Emperors were also more or less obliged to give presents. These presents are different from the earlier mentioned handouts. Handouts were general gifts to a group of people, whereas presents went to specific persons. Gifts went to Roman society itself and to foreign rulers. Finally, the third issue concerns foreign subsidies. These subsidies could take place in many different ways, like giving land, giving exemption from tax or to buy peace. If the subsidy was paid in money, it was typically paid with gold coins. Both gifts and subsidies are tools of foreign policy. They are used to manipulate or bribe the neighboring countries.

The imperial expenditure of the Roman state was closely connected with the production and use of metal coinages.[77] Especially the Roman army and the bureaucratic mechanism assisted the initial distribution of coinage from the

[74] Sesam Atlas 2007, pp. 100-2

[75] Duncan-Jones, R. 1998, p. 38, 218, 267-9

[76] It can potentially be worked out by analogy with smaller Roman buildings. But this method ignores the luxury component of the Imperial buildings, as for example the earlier mentioned building of the Capitol. Duncan-Jones, R. 1998, p. 41-2

[77] Katsari, C. 2011, p. 36

mint of Rome to the provinces. However, together with the Roman government we must not forget the role of merchants. Merchants brought these coins well beyond Roman borders, though most of these coins were of higher fineness and could have been exchanged for their intrinsic value[78] It is beyond the scope of this thesis to be very precise about the role of external trade. But external trade and subsidies certainly influenced Rome's government budget balance, as well as payments to the army and to the bureaucratic mechanism does.

3.3 Balance of payments

It is the government budget balance with which I will close this thesis. We discussed how Emperors created revenues and how they used it in the economy of the Roman Empire. However, their spending attitude was not always that easy. Along the way through this thesis we came along examples of surpluses and deficits on the government budget balance. Firstly, we saw that minting under Tiberius en Caligula seems to have been low because booty became exhausted.[79] Tiberius was a parsimonious Emperor[80] who left 2.7 billion sestertii to his successor Caligula. Caligula however had a tendency to live somewhat beyond his means. In one year he devoured Tiberius legacy of 2.7 billion sestertii.[81] As we saw in Table 2, the government budget in 150 A.D. was somewhere between 832 and 983 million sestertii. Assuming government budget to be equal to that of a century later, Caligula spent at least 3 Imperial budgets in one year. Secondly, the Roman government seems to have run its fiscal operations without credit. There was no public debt to fill any gap between revenues and spending. Despite occasional government lending, government borrowing was practically unknown. If the government ran out of money, the state would default on its obligations, with painful consequences for some of its employees and subjects.[82]

3.4 Summary

This chapter aimed at a review on the government budget. To begin with, we already saw in the previous chapter that Roman Emperors got revenues through manipulation of the value of coins.

Next to this we saw in this chapter that the Roman government got revenues from its tax system. Because Egypt's solid and well documented bureaucracy, the Romans easily used this solid foundation to tax Egypt. Within the Roman Empire I discussed the difference between direct and indirect taxes. Indirect taxes were all kind of toll and duty impositions whereas direct taxes were imposed on land and on individuals. Pertinax and Caracalla, who brought more people in the scope of these taxations, functioned as two examples of tentative 'fiscal policy'.

[78] Katsari, C. 2011, p. 187 and Duncan-Jones, R. 1998, p. 103
[79] See Section 2.2.1.
[80] Seutonius 2006 Tiberius 46-49
[81] Seutonius 2006Caligula 37
[82] Duncan-Jones, R. 1998, pp. 3-4 See also Section 3.1.2 on confiscation of the property of the condemned.

On government spending I had to be less precise because we lack the exact evidence. Although, rough estimations could be made. About 72-77% of government budget was spent on the Roman army. The other 23-28% was spent on handouts, buildings, bureaucracy and 'other items'. Only the expenses on handouts did rise considerably between A.D. 150 and 215. Their share of the government budget rose from 4-5% to 9-10%.

4 Summary and conclusion

4.1 Summary

I begun this thesis with a brief description of the Quantity Theory of Money. Assuming a constant velocity of money, it stated that an increase in the money supply will cause an increase in the number of transactions. On the long term however an increase in the money supply will cause only prices to rise. To be able to elaborate this theory further I introduced first the Roman coin system. Rome worked with a bimetallic coin system. The main coins were the golden aureus and the silver denarius, established by Augustus. Augustus was an Emperor who tried to 'restore the Republic', which led himself to spent huge amounts of money to satisfy the people and his subjects. We expected that, according to the Quantity Theory of Money, this increase in the money supply caused prices to rise on the long term. But because the Roman Empire was not fully monetized, it seems that the assumption of a constant velocity of money must be doubted in this case.

In Nero's time, about fifty years after Augustus reign, prices decreased while the government budget could not keep up the pace of his large scale expenditures. In order to improve the financial system, Nero changed the value of aurei as well as denarii, giving leeway for revenues from both aurei and denarii. More than hundred years later Septimius Severus did the same. We saw that most of the coin changes 'officially' were done in order to try to keep the ratio between aurei and denarii at 1:25

But the Roman Empire struggled in maintaining its monetary system. To explore this further, we saw Gresham's Law at work in the regularly changes in the weight and fineness of aurei and denarii. Gresham noticed that 'bad money drives out good money'. Among the many changes I took the antoninianus as an example of one of the consequences of changing the value of coins. The antoninianus became the major coin in the Roman Empire, replacing the denarius.

I closed my thesis with a review on the government budget. To begin with, we already saw that Roman Emperors got revenues through manipulation of the value of coins. Next to this, the Roman government got revenues from its tax system. Because Egypt's solid and well documented bureaucracy, the Romans easily used this solid foundation to tax Egypt. Within the Roman Empire I discussed the difference between direct and indirect taxes. Indirect taxes were all kind of toll and duty impositions whereas direct taxes were imposed on land and on individuals. Pertinax and Caracalla, who brought more people in the scope of these taxations, functioned as two examples of tentative 'fiscal policy'.

On government spending I had to be less precise because we lack the exact evidence. Although, rough estimations could be made. About 72-77% of government budget was spent on the Roman army. The other 23-28% was spent on handouts, buildings, bureaucracy and 'other items'. Only the expenses on handouts did rise considerably between A.D. 150 and 215. Their share of the government budget rose from 4-5% to 9-10%.

4.2 Conclusion

In concluding this thesis I will reflect on Roman fiscal and monetary operations as a tool to improve the economy of the Empire.

To begin with, a Roman Emperor was the embodiment of the Roman government. As such, a Roman Emperor needed money to secure his position. He had to remain on good terms with the army. Factually his position was largely dependent on the loyalty of the armed forces. To manipulate the loyalty of the army, we see that Emperors increased army pay several times. Because the Emperor was the embodiment of the Roman state, he depended as well to a great extent on the loyalty of his subjects. We therefore see that the Emperor was more or less obliged to provide men with handouts. Payments to the army, Rome's civilian employees and other items asked for an increasing money circulation and supply.[83]

Especially Augustus spent large sums of money. This money supply however did not bring about the prosperity which Augustus wished. As the Quantity Theory of Money predicts, money is neutral on the long term. About fifty years later, under Nero's reign, we see a decline in the economy, contrary to Augustus' hopes. In this case, the assumption of a constant velocity of money must be doubted because the Empire was not fully monetized.

Being the embodiment of the Roman government, a Roman Emperor controlled the mint output and took decisions about the value of gold and silver coins. In this way he was able to increase the government budget through manipulation of the coin values. Under Augustus' reign seigniorage was not an issue. But soon after Augustus it becomes clear that, among others, both Nero's and Septimius Severus' decisions took seigniorage into account.[84] Both Emperors devaluated the intrinsic value of the denarius. In fact, this happened so often that, at the end of the third century, the denarius lost it value as unit of reckoning and was replaced by a highly overvalued antoninianus. This shows that Gresham's Law was already at work in the third century of our era, long before Gresham noticed.

It is evident that a Roman Emperor could easily use his power to strengthen his own position. In Nero and Caligula we saw examples of a selfish use of the government budget. Therefore, it is not surprising that they increased the mint output and arbitrarily confiscated properties of their subjects as a way to increase government revenues. Whether they knew the bad consequences of such a policy or not, they did not aim at the economic prosperity of the Empire.

But this is only one side of the story. An opposing example can be found in the decision of Pertinax (193 A.D.), who gave away land in the hope for future revenues.[85] In doing so, he stimulated the agricultural sector. The farmers had to sell their products in the market place in order to get money to pay the tax liabilities. This reasoning shows some knowledge of the relation between monetary and fiscal policy and the welfare of the economy.

[83] Actually, these payments did not only ask for money, they stimulated the use of coins as well. Giving subjects of the Empire money, indirectly stimulates them to spent it.
[84] See Section 2.2
[85] See Section 3.1.1

Therefore I conclude that the Emperors were aware of some economic mechanisms, although in a limited way. But the aim of improving the economy of the Empire depended on the Emperor's way of life.

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