

# THE CONCEPT OF INFLATION IN THE ROMAN EMPIRE

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In this paper I would like to explore the development of the monetary economy and the concept of 'inflation' especially during the third century AD. I have chosen this period because of the political and military turmoil that characterises it. The unrest obviously affected the balance of revenues and expenses, while eventually altered the financial policy of the emperors. Part of this financial policy was the production of coinage and its manipulation. The result of this policy was the increase of prices in the market that allegedly led to high inflation.

After the violent death of Commodus in 192 AD civil war broke out. Herodian, an ancient historian, mentions that following the reign of Commodus money became '*the most attractive inducement for men*'<sup>1</sup>. He also says that it was used by the emperors in order to '*bribe*' the soldiers and '*win over their allegiance*'<sup>2</sup>. The political unrest that followed resulted in complete military disorder; the situation demanded large sums of money spent not only for the maintenance but also for the loyalty of the army.

At the end of the second century AD Septimius Severus became the founder of a new dynasty that would rule the Roman empire for more than thirty years. However, the continuous military expeditions were damaging to the finances of the imperial treasury. Severus' aim was to win the loyalty of the army and defeat his opponents. So, he increased the number of his troops and subsequently he increased the soldiers' pay<sup>3</sup>. It has been attested that his behaviour undermined military discipline '*by teaching the men to be greedy for riches and seducing them into a life of luxury*'<sup>4</sup>.

His son, Caracalla (211-217 AD), continued the expansion of the military basis of the empire. He raised once more the pay of the army and he bribed the

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<sup>1</sup> Herodian 5.8.3.

<sup>2</sup> Herodian 1.9.1; 1.9.4.

<sup>3</sup> Herodian 3.8.4; SHA 12.2. Neither source quantifies the increase. For details on army pay rises see: Alston, R., 'Roman military pay from Caesar to Diocletian', *Journal of Roman Studies* 84 (1994) pp.113-123.

<sup>4</sup> Herodian 3.8.4-5.

soldiers with *donativa*<sup>5</sup> in order to sustain the support of the expanded military machine. Caracalla used to say: ‘*nobody in the world should have money but me; and I want it to bestow upon the soldiers*’. An enormous amount of money must have been spent also on food supplies, military equipment and on subsidies to the barbaric tribes of the north<sup>6</sup>.

This military oriented mentality characterised also the financial policy of the subsequent emperors. The success of each emperor to occupy the throne relied on the will of the army. Especially, the period between the reign of Macrinus and the end of the reign of Gallienus is one of the darkest in the history of the Roman Empire. From 217 to 268 - that is a span of 51 years- 16 emperors reigned and issued coinage. It is interesting to note that not even one of them died out of natural causes. This era is characterised by the repeated uprisings of the army, fights of usurpers, plagues, persecutions of the Christians and attacks of the various barbaric tribes as well as the Persians.

The political and military turmoil of the era forced emperors to look for new means to pay their excessive expenditures. The army, in particular, absorbed the bulk of the annual imperial budget<sup>7</sup>. The soldiers that participated actively in all changes of power demanded increased payments every time a usurper appeared in the horizon. If their demands were not met, then their loyalty was sold to the highest bidder. The gradual increase of the power of the army becomes obvious, if we take into consideration the increases of the annual payment of a soldier. During the first century AD the *stipendium* of an infantryman was 225 *denarii* per year<sup>8</sup>, but it was increased to 300 *denarii* by Domitian<sup>9</sup> and remained stable until the end of the second century. The next substantial increase, which is not quantified in the ancient sources, came under Septimius Severus<sup>10</sup>. Another increase took place during the reign of Caracalla, but, although he doubled the pay of the soldiers,<sup>11</sup> this was not enough and was followed by a third rise in 234 when Maximinus Thrax once again doubled the pay of the troops. The *stipendium*, usually paid in *denarii*, [silver coin] was

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<sup>5</sup> In 212 Caracalla, according to Herodian (4.4.7), increased pay by fifty per cent. Although Herodian refers explicitly to the praetorians, Dio (78.36.3-4) suggests that the increase was paid to all the troops.

<sup>6</sup> Dio 77.14.

<sup>7</sup> MacMullen, R., ‘The Roman emperor’s army cost’, *Latomus* 43 (1984), pp. 570-580.

<sup>8</sup> Tacitus, Ann. I, 17.

<sup>9</sup> Cassius Dio 67.3; Suetonius, Domitian 7.3.

<sup>10</sup> Herodian 3.8.4; SHA, Severus 12.2.

complemented by various *donativa* (gifts) paid in cash by the emperors. They usually represented part of their ceremonial expenditure, e.g. at the time of their accession<sup>12</sup>.

It is apparent that the political and military orientation of the Roman emperors affected both their financial policy and eventually the monetary economy. The main feature of the third century is the increasing production of silver coinage. The only way of documenting the rise of mint output is by relying on the numismatic data as they are found in excavations or in hoards.

For example, the excavations in Athens, Corinth, Patras and Ephesus demonstrate important rises in mint output during the third century. The distribution of silver coinage is almost uniform during the Antonine period, while it forms a small peak during the reigns of Septimius Severus and Caracalla. The volume of silver coinage increases abruptly during the reign of Gordian III and continues rising until it reaches its highest peak during the reign of Gallienus. Coin hoards and excavation finds from Asia Minor and Syria demonstrate the same picture<sup>13</sup>.

The increase of the mint output cannot be doubted. But there is a question we ought to ask. Where did the Roman emperors find the bullion for the issue of the additional coins? Ancient writers inform us that wars were not as profitable as they used to be. The Roman Empire has not expanded substantially, since the beginning of the second century. The wars during the third century were mostly defensive or civil wars and thus did not produce any profit. If the State did not have any outside financial sources, then it would turn to its domestic sources. The total increase of the volume of precious metal coins in the Roman Treasury would normally burden the inhabitants of the empire with taxes. New taxes, though, could be the cause for alarm among the upper classes as well as the poor inhabitants of the provinces.

Since other sources of revenue had to be found, the only sensible solution seemed to be repeated re-coinages and the manipulation of coinage. The Roman emperors kept withdrawing the older silver coins from circulation. These coins were of higher fineness, which means that they included more silver than base metal. The emperors melted them down and added more base metals to the new issues; thus the

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<sup>11</sup> Herodian 4.4.7.

<sup>12</sup> Harl, K., Coinage in the Roman Economy, 300 BC to AD 700, Baltimore and London: John Hopkins University Press 1996, p.222-223.

<sup>13</sup> The above evidence have been analysed in C. Katsari, The Monetary Economy of the Eastern Mediterranean, from Trajan to Gallienus, Ph.D. Thesis, University College London 2001.

silver coinage of the era became debased. This way, they managed to issue more coins intended for the payments of the soldiers. However, the legal value of the precious metal coinage remained the same as before.

The first substantial numismatic changes took place during the reign of Septimius Severus, when the fineness of the *denarius* was gradually reduced to about 50 %<sup>14</sup>. His son, Caracalla, took further steps towards the same direction. He introduced a new silver denomination, the *antoninianus*<sup>15</sup>. The commercial value of this coin remained higher than its real one. According to its weight the *antoninianus* should be regarded as 1 ½ *denarii*, however, the coin was probably accepted as a double piece<sup>16</sup>. The surplus of this overvaluation allowed the emperor to issue even more pieces of coinage. Even after the introduction of the *antoninianus* by Caracalla in 215, the *denarius* continued to be the basic silver denomination until AD 238. During the Severan period after the death of Caracalla, Macrinus and Elagabalus issued *antoniniani* only in the first months of their reigns. These issues were abandoned in 219 and did not reappear until the reintroduction of *antoninianus* by Balbinus and Pupienus in 238 at a reduced weight of 4,75 gr., as an attempt to ameliorate the finances of the State even at the expense of stable coinage<sup>17</sup>.

The Military emperors debased the silver currency even further, while they promoted the production of the *antoninianus*. In order to acquire more money, each emperor lowered the purity of the *antoninianus* even more and thereby condemned the silver coins of his predecessor to the melting pot. This period is characterised by monetary changes both in weight standards and particularly in fineness standards, although the coins' face value probably did not alter with the same speed. The fineness and weight of the *antoninianus* did not remain stable throughout the third century. The fineness of the *antoninianus* of the latest coinage of Trajan Decius was about 40%, but from this period onwards the debasement became more rapid until its

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<sup>14</sup> For mean weight of silver in silver coins from the reign of Septimius Severus until the reign of Aemilian see: Walker, D.R., *The Metrology of the Roman Silver Coinage*, Pertinax to Uranus Antoninus, III, BAR Suppl. Ser. 40, Oxford 1978, pp. 49-50. Walker's results have been corrected by Butcher, K. and M. Ponting, 'A study of the chemical composition of Roman silver coinage, AD 196-197', *American Journal of Numismatics* 9 (1997), pp. 17-36.

<sup>15</sup> SHA 28.15.8 *argentei Antoniniani*.

<sup>16</sup> Bastien, P., *Le buste monétaire des empereurs romains. Numismatique Romaine XIX*, I, Wetteren: Numismatique Romaine 1992, pp. 107-8.

<sup>17</sup> Carson, R.A.G., *Coins of the Roman Empire*, London/ New York: Routledge 1990, pp. 232 and 234.

fineness fell to 5% in the issues of about 266 AD. From the reign of Gordian III onward the *antoninianus* replaced the *denarius* as the standard silver coin. By the end of the reign of Gallienus, the fineness had fallen to about 2,5 %, a figure suggesting a ratio of 800 *antoniniani* to the *aureus*<sup>18</sup>. It is possible that the slight raising of the fineness standards towards the end of Gallienus reign foreshadowed further intentions of improvement. In the actual event, however, it was Claudius' misfortune to have taken the imperial *antoninianus* to its absolute nadir in intrinsic worth, and to be prevented, by untimely death, from raising the standard by more than a small step towards the superior heights, which were attained later<sup>19</sup>.

The numismatic reforms that started as early as the reign of Septimius Severus, eventually affected the structure of the monetary system. It is worth mentioning that when Commodus was murdered the Augustan system remained almost intact. The *aureus* was still worth 25 *denarii* and the *denarius* was worth 16 *asses*. In this case, the gold coins were used only for major transactions and they spent most of their lifetime buried under the floor, or under the mattress or in any other imaginable or unimaginable place. The silver coins were used not only for major transactions but also for State payments, largesses etc. Finally, the bronze coins facilitated daily transactions in local markets.

On the other hand, by the middle of the third century, it was essential for the monetary system to change. One of the problems was that the gap in the intrinsic value between bronze and silver coins became negligible because of the repeated debasements of the second. Apparently, there was no immediate need for the production of bronze coinage; especially, since billon *antoniniani* could now replace bronze coins in smaller transactions.

During the first and second centuries until the reign of Gordian III, silver coins are not usually discovered in the course of excavations, since people tend to lose low denomination coins. The pattern changed during the third century when silver coinage lost its intrinsic value<sup>20</sup>. Excavations tend to reveal a great number of

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<sup>18</sup> Carson, *Coins of the Roman Empire*, p.234.

<sup>19</sup> Cope, L.H., 'The Nadir of the Imperial Antoninianus in the Reign of Claudius II Gothicus, AD 268-270', *Numismatic Chronicle*, 7<sup>th</sup> ser., IX (1969), p.161.

<sup>20</sup> The proliferation of *antoniniani* in the middle of the third century is attested also in Britain: Fulford, M., 'The economy of Roman Britain', in M. Tod (ed.), *Research on Roman Britain, 1960-1989*, London: Society for the promotion of Roman studies 1989, pp. 175-201, esp. pp. 181-185 and 191-193. An attempt to explain this phenomenon led the above author to believe that the inhabitants, who

*antoniniani*. It is apparent that whoever was involved in minor commercial activities would use his silver coins (*antoniniani*) in the local market and he would not bother if he lost one or two of them in the process.

Excavation finds from Greece and Asia Minor in most cases show a substantial increase of *antoniniani* in comparison with bronze coins during or after the reign of Gordian III. The bronze coins from the Patras excavations that decline during the reign of Philip are partly substituted by the *antoniniani*, which start rising during Gordian III in order to form their highest peak by the reign of Gallienus. In Athens both bronzes and *antoniniani* rise during the reigns of Maximinus and Gordian III respectively and they both form high peaks during Valerian/Gallienus. The bronze coins from the excavations in Corinth decline during the reign of Trajan Decius while at the same time the number of *antoniniani* rises beyond the number of bronze coins. In Asia Minor, Pergamos, *antoniniani* form their first peak during the reign of Gordian III and subsequently they continue rising until they shape peaks similar to the peak of bronze coinage by the reign of Trebonianus Gallus. Coin finds from Sardis show also that the number of *antoniniani* that starts increasing during the reign of Gordian III reaches the same height as the bronze coinage by the reign of Trebonianus Gallus, and subsequently the number of both *antoniniani* and bronzes rise during the reigns of Valerian/Gallienus. A small peak of *antoniniani* is also attested in Ephesus during the reign of Gordian III. During the reign of Philip the number of bronze coins declines while *antoniniani* remain stable. Both bronze and silver coins form high peaks during the reigns of Trebonianus Gallus and Gallienus. Especially *antoniniani* remain higher until the end of the reign of Gallienus<sup>21</sup>.

The above situation triggers another question. If silver coins were now facilitating minor transactions what means did the Romans use in order to carry out major commercial transactions? In this case, we could assume that the use of *denarii* and *antoniniani* was replaced by the use of silver or gold bullion. In fact, the rare appearance of gold coins in inscriptions or literary sources of the third century could indicate such a development.

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belonged to higher social strata, may have used precious coins more often, thus increasing the degree of monetization. However, this is very unlikely.

<sup>21</sup> These results are presented in Katsari, The Monetary Economy, ch. 5.

It is natural to wonder whether the above monetary changes caused any wider effects on the Roman economy, such as inflation. In fact, most researchers used to favour the hypothesis that inflation rose abruptly at some point between the reign of Septimius Severus and the reign of Diocletian<sup>22</sup>. A strong indication for such a theory was the Price Edict, an inscription that belongs to the Diocletianic period and regulated the prices that seemed to have increased substantially during the previous century. Other researchers tried to prove that monetary reforms did not cause any inflationary tendencies and they suggested that prices did not increase substantially while inflation remained insignificant until the beginning of the fourth century<sup>23</sup>. On the other hand, Duncan-Jones accepts an inflation of 0,61-0,83% per year for the second century in the Roman empire<sup>24</sup>, a percentage that indicates that inflationary tendencies existed even before the monetary reforms of the third century.

An important project by Dominic Rathbone that was published in 1996 demonstrated that prices in Egypt did not rise substantially until the reign of Aurelian<sup>25</sup>. A second article by the same writer that based his research on wheat, wine<sup>26</sup> and donkey prices indicated the same phenomenon<sup>27</sup>. The author tried to explain this stability by assuming that the degree of monetization in Egypt rose during the third century and absorbed the cumulatively increasing stock of coinage in circulation without causing price inflation. Although his theory sounds plausible, we should look also for other explanations that would elucidate the steadily increasing prices until Aurelian, when they rose abruptly.

On the other hand, Elio Lo Cascio criticises the researchers, who suggested that inflation was negligible until the end of the third century; he argues that prices remained comparatively stable until the mid-third century and he attributes the

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<sup>22</sup> Walker, The Metrology of Roman Silver, III, p. 140; Crawford, M.H., 'Finance, coinage and money from the Severans to Constantine', in H. Temporini (ed.), Aufstieg und Niedergang der römischen Welt, II, Berlin: de Gruyter 1975, pp. 560-593, esp. pp.590-1.

<sup>23</sup> Corbier, M., 'Devaluations et evolution des prix', Revue Numismatique 27 (1985), pp. 69-106.

<sup>24</sup> Duncan-Jones, Money and Government in the Roman Empire, Cambridge: Cambridge University Press 1994, pp. 25-28.

<sup>25</sup> Rathbone, D., 'Monetization, not price-inflation, in third century A.D. Egypt?', in C.E. King and D.G. Wigg (eds.), Coin Finds and Coin Use in the Roman World: The Thirteenth Oxford Symposium on Coinage and Monetary History, 25.-27.3.1993, Berlin: Mann 1996, pp.321- 339.

<sup>26</sup> For example, from the mid-first century AD to the mid-second century most prices fall within a range of 3 to 8 dr. per keramion, while from around 190 to 270 most fall within 8 to 20 dr. Although such an increase reaches the number of 100% it is still small compared to the increase that took place after 270, in Rathbone, Prices and price formation, p. 200.

<sup>27</sup> Rathbone, D., 'Prices and price formation in Roman Egypt', in J. Andreau, P. Briant and R. Descat (eds.), Economie antique: Prix et formation des prix les économies antiques, Entretiens d'archéologie et d'histoire, Saint- Bertrand-de-Comminges 1997, pp. 183-244.

incident to the stable exchange rates that were imposed by the State<sup>28</sup>. Supposedly the exchange rates between gold, silver and bronze coinage remained unaffected, therefore the prices did not need to change, as long as the Romans accepted the existing monetary system. Only when the rates altered during the reigns of Claudius and Tacitus did the prices in gold suddenly increase.

The above hypotheses determines that a substantial increase took place some time after the mid-third century in prices but this phenomenon cannot prove by itself a respective increase in inflation, an economic expression that characterises mostly modern economies based either on representative or credit money. Today, we think of inflation as the general and continuous rise in the prices of goods, services and factors of production. However, in antiquity economic systems relied on the value of the intrinsic metal of the coin rather than credit. How can we expect the characteristics of modern inflation to apply in the economic structure of an ancient society? It seems that, during the Principate, the legal value of a coin (silver or gold) was defined by the value of the metal inside it. 'Inflation' would probably take place only if the Roman state guaranteed a legal value of coins that did not coincide with their real value. It is true that some of the emperors tried to reduce the silver in the coins without changing their legal value. Could that be a turn towards a 'credit' economy? The answer is NO. The population was not ready to accept such innovations. The repeated debasements of the third century undermined the trust of the population regarding the imperial coinage. The central authorities were eventually forced to alter the exchange rates (following the pressure of the market) while the monetary system finally collapsed.

Of course we cannot rule out an increase of prices<sup>29</sup> after the middle of the third century (a phenomenon that could be interpreted as inflation). But such an increase should have been anticipated. We saw that the silver metal in the coinage was reduced from the reign of Septimius Severus onwards. Thus every transaction would probably demand more coins at hand. Even if the exchange rates remained stable for a few years, eventually people would demand more coins for the same services as before. Although they needed more pieces of coins e.g. to buy a loaf of bread, in fact the amount of silver that they exchanged remained the same. In this

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<sup>28</sup> Lo Cascio, E., 'Prezzi in oro e prezzi in unita di conto tra il III e il IV sec. d.C.', in J. Andreau, P. Briant and R. Descat (eds.), *Economie antique: Prix et formation des prix les économies antiques*, *Entretiens d'archéologie et d'histoire*, Saint-Bertrand-de-Comminges 1997, pp. 161-182.



sense, we may observe price increases and increases of coin output in circulation. Economists may perceive as 'inflation' the commonsensical effect of the repeated debasements of silver coinage. But I think that this term does not describe accurately the nature of the ancient phenomenon. Since debasements took place in regular phases (more or less intensely) then the price increases also happened some time after the currency reforms. Only when the monetary system collapsed after the reign of Gallienus prices stopped increasing in a regular way and they rose uncontrollably.

We have seen that coin hoards and excavation finds indicate an increase in the production of coinage during the third century AD. Such an increase could only be connected with the demands of the soldiers for higher salaries and the explosive situation that was created by civil wars. The increase in the volume of coins in circulation was accompanied by monetary reforms. The State probably decided to manipulate the weight standards and the fineness of the coins in order to profit from the overvaluation. Repeated debasements of the silver coinages started during the reign of Septimius Severus and continued throughout the Severan and Military Anarchy period.

Eventually the silver coins were devalued at a point in which they could have been used only in place of bronzes. The so-called silver coinage that consisted mainly of billon *antoniniani* replaced the bronze coinage in every day transactions and facilitated minor commercial activities. At that point the monetary system was irreversibly altered. It is not certain whether this situation caused any inflationary tendencies. Increases in prices have been attested, but these just verify the fact that the silver content of the coins was reduced; therefore a larger number of silver pieces were necessary for the same transactions as before.

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<sup>29</sup> Dominique Rathbone indicated that prices increased in Egypt. See above, notes. 25 and 27.