

Credibility and Gradualism in a Monetary Reform: Token Copper Coins in the 17th - early 18th Century Russia

Abstract

The paper compares the two major monetary reforms in the 17th – early 18th century Russia – introduced by Alexei Mikhailovich (1654-1666) and Peter the Great (1698-1724) – and analyses why the former failed and the latter proved to be successful. Both rulers sought to reform the archaic system and to find new fiscal sources of revenues by introducing copper coins and issuing coins having bigger nominal value. The main focus of the paper is to show the relationship between the final result of the reform and the government credibility, i.e. the ability of the rulers to establish a reputation and to keep their promises. First reform failed and led to the “copper rebellion”. As the measurement of credibility we used such indicators as the amount of token money issued, the nominal/metal ratio and its dynamics, the amount of forged money. We argue that gradualism and government credibility were crucial for the success of Peter the Great’s monetary reform. This paper studies the signals used to persuade the merchants and all the inhabitants to use the new copper coins as tokens of money regardless of their metal, standard or weight. The results of the research could explain better the successful strategy of introducing token money and the development of trade and credit market in these two centuries as well.

Introduction

It is reasonable to outline in a foreword the main questions of a paper. The idea of focusing on the attempts of copper money introduction was taking shape along with the progress of the work on the history of monetary reforms in Russia and history of monetary thought in early modern Russia (or before Adam Smith). Therefore, it was not the necessity to demonstrate how a new economic model or theory works that made the author consider the problem. On the contrary, it was the accumulating information and evidence on the history of economy and history of ideas that made it necessary to seek adequate theories and concepts that could explain why one monetary reform was a success, while the other one failed.

The rulers often had to resort to the debasement of coinage and devaluation in their search for sources of revenues. The two considered reforms (1654-1666 and 1698-1724) have a common incentive. They were implemented with the aim of solving financial problems of the Treasury by issuing token money. These were exclusively silver coins that were in circulation, and the reformers saw their task in replacing a part of them with copper money. The first success achieved by the reform of Aleksei Mikhailovich led to a bold decision of issuing copper money instead of all the silver coins. The expected profit was explicit and prodigious, since the prices on metals differed approximately 60 times. Eventually, due to the mistrust of the population, sharp rise in prices and outbursts of social tension, the reforms had to be totally abandoned and a retreat made to the archaic system of silver kopecks which could be hardly called coins, as in fact they were flattened pieces of wire weighing about half a gram each. The ambitions of Peter I regarding revenues from copper coins issuing were much more modest, especially at the first stage. It was not the question of total replacement of silver with copper, but of their simultaneous circulation and the use of copper for the production of bits and small change. Thus, both the aims and methods of introducing the less burdensome for the Treasury copper money differed much.

Quite often the nature of money is linked with the implicit agreement between the authorities that issue money, and the population that uses it for making payments or savings. The question of how the value of money is determined – either by the market of precious metals, or by an agreement with the authorities, an agreement based on credibility and trust, – has acquired both theoretical and practical importance. The appearance of copper money, and of paper money later on, was inevitably making the matter of trust even more acute. Credibility was the key factor determining stability and circulation of money. Lack of credibility was immediately leading to money hoarding, sharp rise in prices and appearance of a parallel system of payment (with agio).

Gradualism is suggested as the second condition determining success of reforms; it depends on the first factor to a great extent. That is, gradualism promotes credibility. In our case, gradualism is free from the connotation that this notion often has in the literature on macroeconomics, in which a comparison is made between the use of gradual and shock therapy in reforming the economies in transition. According to the classical concepts, abrupt changes in the monetary policy may be (in the worst case) neutral in relation to other macroeconomic variables. Keynesians, on their part, are inclined to believe that gradualism in the monetary policy implementation may improve real indices. Economic rhetoric inevitably returns to these discussions, though the context and understanding of the term somewhat differ. To repeat myself, gradualism is considered in this case as the development of the central notion of credibility. By rephrasing the Giuseppe Moscarini's paper "Competence implies credibility" (Moscarini, 2007), the author supports the thesis that "credibility implies gradualism". This thesis is proposed more from the institutional-historical rather than macroeconomic perspective. Market economy of the considered period was in its very embryonic state, hence is the important role performed by the institutions rather than by relation of macroeconomic variables.

A ruler, the supreme power always have a possibility of increasing revenues by raising the supply of money. In the short run, it helps to collect additional revenues, but in the long run it leads to hyperinflation and deterioration of well-being. In the modern world, independence and transparency of the central bank, severe monetary rules commit not to inflate. Simply put, the present paper is aimed at answering the question why Aleksei Mikhailovich failed to gain credibility, and at revealing mistakes and miscalculations of his economic policy. On the other hand, the paper aims at demonstrating the decisions and institutions that allowed Peter I to commit credibly. Gradualism like a time consistent behavior is regarded as a commitment device. As is known to the author, monetary reforms in Russia have never been examined from this point of view. I also suppose that a careful examination of evidence will improve theoretic understanding of the issue of credibility in the financial sphere.

The theoretical framework of the paper is discussed in Section I. Section II is devoted to the outline and analysis of the failure of Alexey Mikhailovich monetary reform. The causes of credible and consistent monetary reform of Peter the Great is discussed in Section III.

I. Credibility and Gradualism

Credibility has become one of the central notions used in the assessment of the monetary policy of central banks and international institutions, especially in economies in transition (Burdekin and Langdana, 1995, Bureaucrats, 1995, Haan, 2005, Stone, 2002).

The WB report on the state-owned enterprise reforms entitled "Bureaucrats in Business" deals with a completely different historical period and analyzes mostly privatization (Bureaucrats, 1995). Nevertheless, it provides a useful framework for the research and shows how the problem of the state credibility is important for the success of any reform. Chapter IV written by Phillip Keefer contains useful tools for studying politics of the reform. The reform should be not only politically desirable (benefits for leaders) and feasible (overcome opposition) but also "must be *credible* – promises, which the authorities make to compensate losses and protect investor's property rights must be *believable*". Credibility presumes the ability of the leadership to minimize the resistance of the possible opposition, to keep its reputation and to credibly promise their commitment. In relation to others the monetary reform usually pursued purely fiscal goals and helped to raise funds for warfare, which was very costly. At least the two reforms, which we are going to compare, had obvious fiscal interest. The ability of government to convince their subjects to use new copper coins had was extremely important. The growth of prices depends on the trust of the people. Trust could enhance the sovereign's credible promises of the future compensations or the readiness to take this money back in accordance with the established rate. The government credibility is enhanced by reputation, restrains on the change of the basic rules and reversal, and by the pace and the gradualism of the reforms.

There are relatively few examples in the pre-modern history, in which we can observe the security of property rights and the credible commitments in financial sphere. Nevertheless, there are some special studies of economic history that deal with the problem of credibility and the question of how to make the promises believable. According to North and Weingast the change of the political institutions, which constrain sovereign actions, has important implications for the economic growth, the property rights and the development of markets. They interpret the Glorious Revolution of 1688 as the constitutional way to constrain “irresponsible behavior” of the sovereign and to force the ruler to commit credibly (North and Weingast, 1989).

The importance of public confidence in the consequences of deficit financing during the American Civil War was examined by Richard Budekin and Farrokh Langdana (Burdekin and Langdana, 1995, pp. 59-83). Confederate policy of South relied on non-interest bearing and short-term debts and, finally, had no hope to restore confidence.

The credibility of reforms, the credit of trust to authorities is determined by the actions and expectations of several parties. First, these are the actions of the sovereign, which can behave in a responsible way and fulfill all self-imposed commitments. Sovereigns did not face substantial constraints from legislative bodies or independent central banks. Though, sovereigns could establish a mechanism for strengthening its credibility by matching its actions to its public statements and promises. Second, these are governmental bodies restricting the power of the ruler, they can enforce the observance of rights. Institutes belonging to this category are the Parliament, Constitution and independent court of justice. In each specific case these restrictions be effective or have the nominal character, that is remain declared on paper. The opposition to the central power has not been invariably constructive; sometimes it can provoke riots and result in the loss of stability. That is, certain restraints are important not only in relation to the ruler, they are also necessary for the official opposition. Finally, third, the reform credibility for the population depends on the standards of relationship between the authority and people, from a certain “picture of the world”. The mystical worship of the central power, a firm belief in its divine origin can justify many shortcomings of reforms.

Measurement

How can we measure the different aspects of credibility? The WB uses such parameters as the risk of expropriation, the risk of contract denial, the rule of law, the domestic and international restraints. What were the results of other implemented reforms: e.g. military, church, judicial? Does the reform design discourage the reversal? What are the constraints on executives?

How to measure the credibility or the public confidence in the case of monetary reforms? Besides the external political constraints on the sovereign we could mark out the following tentative monetary indicators. First, the credibility depends on the price stability or the dynamic of inflation. The rise of prices leads to the preference of real money (in our case silver money) and to the stagnation of trade. In the same time the initial lack of credibility tends to increase prices. Second, the important parameter could be the amount of token money issued in the total circulation. In the absence of banks we need to know the supply of token and real (silver) money. In the case of Peter the Great this ratio was relatively small. The bigger is the relative amount of token money supply, the higher is the probability of financial crisis. The short-run huge profits of treasury inevitably lead to the decline in living standards and welfare in the long-run. The third key indicator is the ratio of token to real money, or the ratio (or exchange rate, *agio*) of copper to silver money. Token money was very rarely regarded as a pure substitution of real money coined from precious metals. It led to the preference of silver money. The decree of reformers usually announced that the value of token money was the same. Nevertheless, the government itself was often the first who refused to accept taxes in token coins. Additional parameters that indirectly influenced the credibility of sovereign are the ratio of nominal to internal value and the estimated amount of counterfeit money. In many countries copper has been used as a small change (starting from Ancient Egypt, Greece and Rome), but the coinage of token copper money allowed raising budget from the difference in the value of the face value and the copper itself.

This ratio of nominal to intrinsic value was much higher in Alexey reform. It is difficult to have precise data on the amount of counterfeit money in the circulation. Nevertheless, it is possible to observe the government measures and policies that tried to prevent the market from the counterfeit money injections. Obviously, the counterfeit money raised the supply of token coins. Finally, state credibility – “doing what it says” – connects two moments in time: promises and actions. The time consistency is the central point in our understanding of the gradualism which deals with the logic and the sequence of actions, the speed of the change. Credibility often implies gradualism.

II. Monetary Reform of Alexey Mikhailovich: Haste and Loss of Credibility

Historical context of reforms

The studied period covers the time interval of approximately 80 years: from the middle of XVII until the first quarter of XVIII century. Many initiatives undertaken by Alexey Mikhailovich were brought to completion by his son Peter Alexeevich. The continuous expansion of Russia was in progress. Conquering of Siberia, accession of the Ukraine, undertakings to get the access to the Black and Baltic seas. The active introduction of foreigners, westernization of culture also tied these two directions with the invisible thread. Finally, the reform of archaic monetary system had been the long felt need, which was actualized by Peter I. The two periods had distinct differences, which cannot be discussed in detail within this work. Still, it is expedient to mention them. If XVII century can be characterized as the “age of riots” of the Moscow period, which was characterized by the strongly traditional society and religious mentality, the first quarter of XVIII heralded the so-called St. Petersburg period, when the capital of the young empire was transferred to St. Petersburg.

This period witnesses global reforms influencing the political institutions, religion, army and, naturally, the financial sphere. This is the age of Enlightenment, cultural revolution and secularization. On the other side, the means of reform implementation are mostly forcible, oriental. Peter believed that without enforcement the folk “will not get down to the alphabet”. The combination of strongly centralized power and extended territories preconditioned a weak development of the institute of private property, strong ties between the power and property, that is the situation, which North and Weingast define as ‘limited credible commitment to rights’. Noteworthy that in Peter’s period the absolute power becomes even stronger, though such institutes as the Senate, the legislative body, are borrowed from abroad.

What were the reasons for conducting the monetary reform? First, it was necessary to bring the obsolete monetary system in compatibility with the West European one, to which Muscovy became closer after the accession of the Ukraine. Second, as it often happens, the long-continued war with Poland and Sweden demanded new resources, which could be provided by the monetary regalia. Third, a possibility to buy copper from Sweden became real for a short period of time.

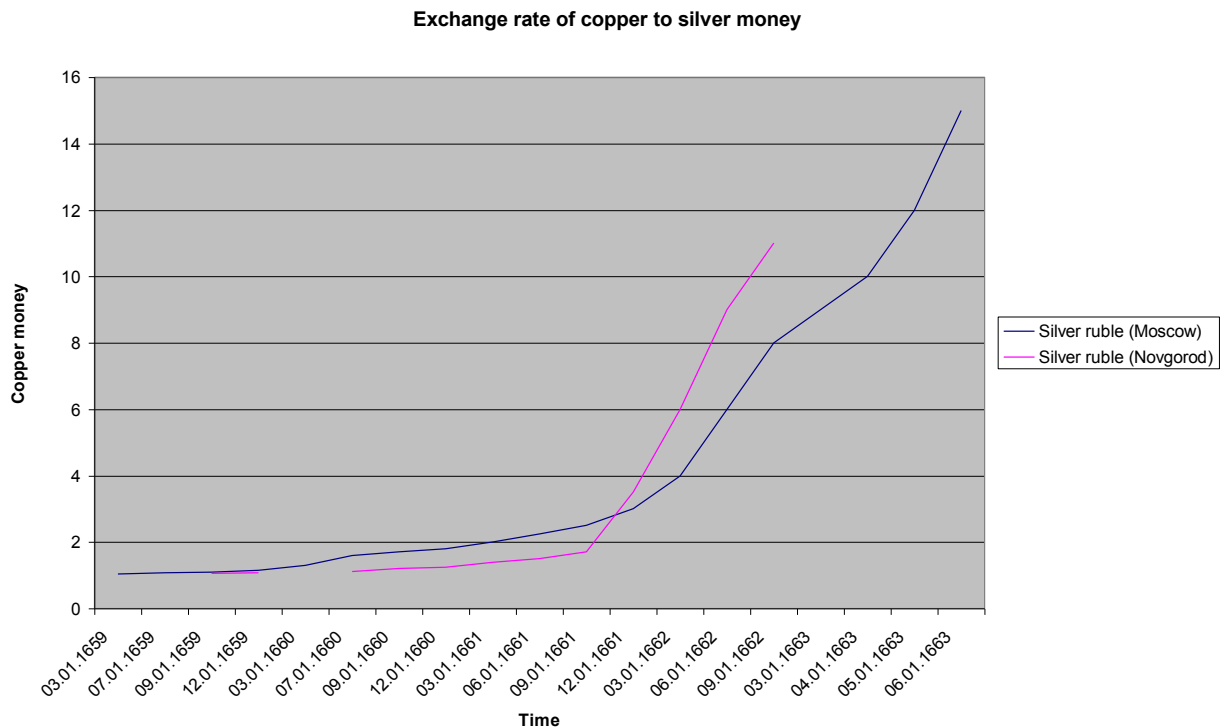
The monetary system of Muscovy was based exclusively on the silver-wire kopecks, the weight of which before the reform was 0,5 gram, and by 1698, the time of Peter’s reform, it was 0,28 gram. They were outdated. In fact, those were not coins yet, but manually pressed pieces of wire. Inconveniences for all types of transactions were evident. Tiny slippery coins were difficult to hold with fingers. There had to be a special staff hired for counting. Silver kopecks were not popular for transactions in the Ukraine. The raw metal was brought from abroad as thalers, which were processed by melting, and that gave additional income of 20-30 % to the Treasury (Spassky, 1965, p.p.116-118).

What steps were undertaken for the reforms? At first an attempt was made to issue coins having a large nominal, but Russia could not master the technology. As a way out they started to put marks on European thalers. Russia failed to take an external loan in Venice, and the treasury needs were pressing. In these circumstances a dramatic decision was taken: to produce more

coins and declare them equal to the silver money. Starting from 1655 the massive emission of copper kopecks was made in Moscow, Novgorod and Pskov. Excluding foreigners and inhabitants of Siberia all had to take silver and copper money as having the equal value, whereas the real cost of copper was 60 times lower than silver. The table and diagram below show the collapse of the officially established copper kopeck rate in Moscow (Shtorkh, 1868, pp.774-775, Bazilevich, 1936, p. 45).

Table 1. Ratio of silver and copper rubles in Moscow and Novgorod

Time	1 Silver ruble (Moscow)	1 Silver ruble (Novgorod)	Time	1 Silver ruble (Moscow)	1 Silver ruble (Novgorod)
1655	1 copper ruble	1 copper ruble	1 September 1661	2,5	1,70
1 March 1659	1,04	1,03	1 December 1661	3	3,50
1 July 1659	1,08		1 March 1662	4	6
1 September 1659	1,10	1,05	1 June 1662	6	9
1 December 1659	1,15	1,08	1 September 1662	8	11
1 March 1660	1,30		1 March 1663	9	
1 June 1660	1,60	1,12	1 April 1663	10	
1 September 1660	1,70	1,20	1 May 1663	12	
1 December 1660	1,80	1,25	1 June 1663	15	13
1 March 1661	2	1,40	After 1 June 1663	100	
1 June 1661	2,25	1,50			



First years after the emission of copper equivalent the measure seemed to work. The tsar's order, a limited emission of copper money, their acceptance by the Treasury ensured the stability. Unfortunately, another hasty and premature step was taken: replacement of all silver money with copper coins. A complete collapse happened in 1663. All copper money had to be taken out of circulation. According to the Tsar's decrees of the 15th and 26th of June 1663, all copper money was to be exchanged in silver one at a rate of one hundred copper per one silver ruble during one month (Bazilevich, 1936, p. 71). It was even below the exchange of copper to silver and, hence, such a rate assumed even bigger loss for the public.

Copper was not perceived as an authentic equivalent of silver, people used every opportunity to get rid of copper coins. Too much copper money was emitted within a short period of time; the reform had no gradualism, so people had not got used to the new money. In order to study the credibility we should examine the stability of prices or the inflation and the supply of token copper money. The ratio of copper to silver money was discussed above.

Since Muscovy did not have its own mines, the supply of silver coins was limited by the silver money imported to Russia. The coinage of silver brought up to 30 % to the Treasury. The issue of copper coins opened the possibility to increase the money supply and the budget tremendously. Money supply of copper coins was easier to organize since the market price of copper contained only 1,2% of its nominal value. The annual profit of copper campaign is estimated to be 395200 rubles (Bazilevich, 1936, p. 14). It was at least 10 times more than the taxation of 20 % of the turnover of trade and crafts. There is no precise information on the copper supply during 9 years of reforms. According to some estimation (Mayerberg), the overall amount of copper coins issued was close to 20 mln. rubles (Bazilevich, 1936, p. 26). It is a huge amount of money since, for instance, in 1680 the government budget was not more than 2 mln. rubles. The profit of treasury was huge and could not be sustainable. Another factor, which caused the loss of credibility of the governmental reforms and the expansion of money supply, was easiness, with which the copper coins could be counterfeited. The reform credibility was completely compromised by the wide circulation of counterfeit coins, stamping of which was fabulously profitable. Obviously, counterfeit money raised even more the supply of copper coins in the circulation.

We have indirect and direct evidence on the growth of prices in 1660s. This question was discussed by the merchant council. The main cause was supposed to be speculations of grain without even mentioning the copper money issue. Many travelers referred to the high cost of living, to high prices (Collins, Rodes). Brickner gave an example with the official prices on vodka. In 1653 the pail¹ of vodka was 75-90 kopecks worth, 15th March of 1660 the price raised to 1 ruble and a half, 16th October of 1660 it became 3 ruble, 26th September 1662 the price reached the level of 5 rubles (Brickner, 1864, p. 40). The prices of rye and oats also rose many times to 1662-1663. High prices led to the stagnation and the naturalization of trade.

The government lost the credit of trust very quickly. Actions of reformers missed continuity. A short-term success of the copper money emission gave grounds to hope for the complete replacement of circulated silver with copper. Apparent lack of reasonability and consecutiveness in the governmental measures made people worry about imminent losses. In Siberia and in the new Ukraine territories such money was not accepted due to the existence of parallel currency systems: in Siberia sable skins and leather were accepted for payment, and in the Ukraine European thalers were in use. All the transactions with foreign merchants also had to be in silver. The secret restrictions regarded the tax money too. The inconsistency had to do with the actions of the government. The state persecuted for the rejection of take copper money as a salary and in the same time did not accept copper money as the budget payment. In 1656 the decree required that at least two third of revenues should be collected in silver. The deficient money made merchants raise prices, especially if their trade was connected with the external market. The military, who received their wages in copper coins, had complications in paying for merchandize, therefore the new money was not popular with them.

“Copper is Not a Silver”: Lost Credibility Narrated by Contemporaries

In order to get the authentic information about the epoch and the confirmation of general conclusions about the loss of government credibility let us use original sources of the period.

An important source for the studies of 1654-1663 reform is the narration of *Grigory Kotoshikhin*. He could directly observe the developments of the monetary reform, when he was on service in the External relations service (Posolsky Prikaz). In 1663 he defected to Sweden and before his execution in 1667 for killing his master he narrated everything he knew about Moscovia (Kotoshikhin, 1840) in his book. The reason of reform failure Kotoshikhin saw in the refusal of peasants and military people to use the new money. Peasants stopped to bring hay, firewood and food to towns, and the military had to buy necessities at double price, which resulted in shortages and exorbitant prices (Kotoshikhin, 1840, p.p. 81-82).

The hardest problem was the falsification of cons, wide **circulation of counterfeit coins**, which contributed to the price growth and loss of trust. Kotoshikhin mentions that there have been cases when coin stamping presses were stolen, forged coins had a lighter weight. Most cruel punishment did not help. The Tsar could not protect his subjects from the false money. Employees of the mint were forced to take an oath by kissing the cross, they had to strip completely for examination, in case of suspicions they were tortured, punished by the hot tin pored into their throats, their hands and ears were cut off, they were whipped, some had their houses confiscated and sent to Siberia (Kotoshikhin, 1859, 81). Forging was particularly profitable, because of more than 20-time difference between nominated value of the copper coin and cost of its production. The mint craftsmen built new stone and wood houses, bought expensive clothes, “food preserves” and “silver vessels” (Kotoshikhin, 1859, 82).

In the opinion of Croatian theologist Kryzhanich, the author of “Politica” and witness of the reform consequences, most important for the state is the good order. It is recognized by the good money, which causes no damage to the trade. In accordance with Kryzhanich the sinful

¹ A pail contained 12,3 liters.

way for replenishing the treasury, along with alchemy and graft, is getting revenues from minting unreliable coins:

“This method is not only unjust, but sinful and very deceitful as well. It appears beneficial, but actually is detrimental and harmful. No ruler can ever expect to obtain money from the debasement of currency without a hundredfold loss in the process...The coining of worthless money resembles this deadly “*remedia desperata*” (Krizhanich [c. 1666] 1985, pp. 9-10).

Financial disintegration, country in devastation, and decay of trade – these are just a few of the consequences described by Kryzhanich. He believes that it is to the benefit of the sovereign to delegate the determination of the coin value to the market forces. By this the fluctuations of the price on metal will be decisive for the coin value.

What was the reasoning behind the reforms? It could not be just gains of the treasury. Prominent statesmen F.M. Rtischev, Ordin-Naschokin adhered to a different point of view, which is conventionally referred to as ‘nominalism’. It is quite explicitly expressed in “Book of the Poverty Wealth” (1724) by Ivan Tikhonovich Pososhkov. The following suggestions of Pososhkov are known:

Their face value shall not be, in the foreign manner, that of the actual value of the copper but as His Majesty shall decide. ... we are not like the foreigners; our concern is not the value of the copper but the glory of our Tsar. Therefore it is not the weight of copper in the coins that we take into account but His Majesty’s superscription upon them. ... it is not the weight of the metal that decides but the Tsar’s will. ... to our simple way of thinking it is not honour but dishonour to a monarch that the value of a coin should be its value as a commodity and not the value the monarch puts on it. ... since our Monarch is absolute and all-powerful, and no aristocrat or democrat. Therefore it is not the silver that we value; it is His Imperial Majesty’s word that bestows honour and authority” (Pososhkov, [1724] 1987, pp. 376-377)

Such perception of reforms was partially shared in the beginning, until prices started to grow and evident drawbacks of the monetary reform implementation have not started to manifest themselves.

The overall reputation of Tsar Alexey Mikhailovich was also influenced by the grown distrust and opposition all over the country caused by the church reforms, which were implemented in parallel with the monetary reform. The church reform was induced by similar reasons – growth of state and necessity to unify religious traditions and translations of the Scripture all over the grown state. Under the leadership of Patriarch Nikon authorities started to “rectify scriptures” and improve rituals. Many priests and congregation perceived this innovation as a change of religion and betrayal of orthodoxy. Acts of disobedience, accompanied by self-burning and reprisals, rolled all over the country. The church reforms were seen as the days of Last Judgment. This contributed to the growth of opposition and loss of authorities’ credibility. Consequently, the “copper riot” in Moscow had also religious grounds; the church reforms made people doubt the righteousness of reforms.²

Therefore, the authorities’ loss of credibility resulted from the inconsiderate and hasty actions of the government, which underestimated effects from the total replacement of silver with copper. The public trust was undermined both by economic factors (price growth, limited acceptability of copper money, spreading of forged coins), and by the growth of general distrust to the government caused by the church schism. The effectiveness of the monetary reform was equal to zero; the archaic monetary system stayed for more than another 30 years.

III. Monetary reform of Peter the Great: gradualism and consistency

The monetary reform had long since ripened; reasons for it were similar to those of the preceding period, as none of the problems had been solved. The urgency of reform was also

² The aspect of religion could be neglected, as it is done by North and Weingast in their analysis of economic and juridical consequences of the Glorious Revolution. But the narrower focus of the studies may result in the omission of relevant details of the historical process itself and, as a consequence, wrong interpretation. See criticism of Carruthers (1990).

explained by the ever-increasing expenditures on the army, which at that period took up to 70 % of the budget.

The monetary reform was carried out stepwise. Its implementation took more than 20 years; it was well-designed and explicitly planned. The direct acquaintance of Peter I with the Western monetary system probably played its role. It is known that in the end of XVII the tsar had several visits to the English mint in Tower on the Thames. There he could get acquainted with the experience of reform, which was carried out under the guidance of Isaac Newton. In the Russian reform preparing and implementation Peter's personal notes and drafts were used. A detailed study of non-published and little-known texts of the reform drafts written at Peter's initiative was made by N. Pavlov-Sylvanskiy. The study proved their big influence on the adopted legislation and implementation of the reform (Pavlov-Sylvanskiy, 1897).

At the preparatory stage it was decided to bring the production of money to a new technological level – mechanical stamping. Starting from 1695 new mints were built; before 1704 five of them were ready in Moscow. Later most of them were used for stamping round copper coins (kopeck, denezhka and polushka, Yukht, , 1994, 13-14).

A. Yukht, a well-know historian of the money circulation in Russia writes:

“The reform followed the plan worked out well in advance. A certain step was made, consequences were observed, and only after that they proceeded to the next step. For example, as early as in 1696 they started to make dated silver kopecks, previously the dates were stamped extremely rarely. These dates (7204-7208) from the beginning of days/from the world creation, which corresponds to 1696-1700 A.D.) were to prepare people to the coming changes in the monetary system. Some years later they began the introduction of dated copper change (denezhkass and polushkas), and from 1704 also the copper kopeck. The parallel emission of uniformly dated silver and copper money got people used to the equal value of both coins, which strengthened the trust to the copper coin”. (Yukht, 1994, 15)

From 1700 emission of small copper coins (denezhkass, polushkas, half-polushkas) was started. From 1704 copper coins were stamped in parallel with silver ones. During first five years copper coins were restamped in insignificant quantities. The weight standard of stamped copper changed gradually. The government took efforts to correlate profitability for the Treasury with “spoil” (losses) for the people and money circulation. Initially one pood of copper was used for stamping 12 rubles 80 kopecks, and in 1701-1703 it was 15 rub. 44 kop.; in 1704-1717 – 20 rub. The price of one pood of copper was 6-8 rub. From 1718 coins worth 40 rub. were made from a single pood. Table 2 shows the subsequent dynamics. 5-kopeck coins of this weight were called the Achilles' heel of the Russian money circulation. In 1718 the stamping of small silver wire money was terminated (Lamansky 1854, 73-75, Yukht, 1994, 28-35).³

Table 2. Weight dynamics of copper coin

Years	Rubles from one pood of copper ⁴	Years	Rubles from one pood of copper
1700	12 rub. 80 kop.	1730-1755 ⁵	8-10 rub.
1701-1704	15 rub. 44 kop.	1757-1761	16 rub.
1704-1717	20 rub.	1762	32 rub.
1718, 1723, 1727	40 rub.	1763	16 rub.

See (Schtorh, 1868, 777, 787)

Table 3. Percentage of gold, silver and copper coins in the cash circulating in Russia XVIII⁶

⁴ Pood – Russian measure of weight. 1 pood = 40 pounds = 16,38 kg.

⁵ Used only for producing small change – denezhkass and polushkas.

⁶ The calculations do not into account banknotes issued from 1769.

	1700-1730	1730-1760	1763-1800
Silver	89,4 %	72,3 %	46,7 %
Gold	2,5 %	2,7 %	10,3 %
Copper	8,1 %	25 %	43 %
	100 %	100 %	100 %

Compiled using (Yukht, 1994, 35, 179, 247)

Copper coins were introduced, but silver money prevailed in the circulation, as shown in Table. 3. Gradual introduction of the copper money is the achievement of Peter I. This money resource was actively used by the state until the introduction of banknotes and use of external loans.

What tasks have been fulfilled? Along with traditional silver, copper and gold came in use as moneymaking materials. Mints were refurbished, which made mechanical production possible. The circulation of large-nomination coins enabled to establish the unified monetary system in the whole country including the Ukraine and Baltic region. Last, but not least, the reform enabled to substantially increase the treasury income and keep the people's trust. Exploitation of the monetary regalia enabled to replenish the treasury, adding to it more than 10 mln. rub. (Yukht, 1994, 13, 35-36).⁷ The negative consequences of light-weight copper emission (forging, false coins, displacement of silver) were done with during their exchange in 1730-1731.

What were the results of other implemented reforms by Peter I?

Monetary reform was not the crucial principal step in the overall change of the Russian political and economic system. The Tsar believed that the most important goal was to reorganize and rebuild the army and fleet. Military expenditures grew tremendously having raised the problem of additional financial revenues. The debasement of coinage and the substitution of silver money by copper one was not the only source. Tax reform gave more for the overall budget. During Peter the Great reign tax burden has been grown three times. Even if according to the official data the population was diminished by 20 %. As the result of the tax reform the populace's payments starting from 1717 were calculated not on the base of the house but personally (each male individual). Pavel Milyukov has demonstrated that the undertaken reforms were actively discussed and planned (Milyukov, 1905). On the first stage, the administrative reform meant simply the destruction of old system of chancelleries (*prikaz*). On the second stage, the system of new regional management was introduced. Finally, the Swedish system of collegias was borrowed when the capital moved to St. Petersburg. To sum up, the monetary reform was only one (gradual and consistent) of the series of reforms. The government was competent. We could also notice that gradualism in monetary issues was compensated by radicalism and drastic changes in other spheres such as the administrative and cultural areas.

The amount of token money issued shows the proportion of the copper to silver money in the circulation. Peter the Great used gradual strategy, and the percentage of copper coins in cash circulation accounted for 8,1 % in 1700-1730. This indicator is appropriate to measure the relative diffusion of token money, whereas the nominal to metal ratio allows us to estimate the difference between nominal and intrinsic values of coins. The debasement of silver coinage gave Aleksei the possibility to pay 60 times less for copper coins in comparison with silver ones. During the Peter the Great's reforms the weight standard of stamped copper changed gradually. The nominal/metal ratio was approximately 2 in 1700 and reached at least 5 and even 8 in 1718 (see Table 4). The profitability of coinage is directly related with such an indicator as the amount

of counterfeit money. There is not enough evidence to measure it. We know that the amount of counterfeit money increased drastically after 1718 when new five kopeck coins were issued.

Government credibility is enhanced by gradualism of the reforms which usually helps to keep up the reputation. At the time of Aleksei copper coins were not perceived as an authentic equivalent of silver, people used every opportunity to get rid of them. In contrast, Peter the Great's monetary reform was carried out stepwise. Its implementation took more than 20 years; it was well-designed and explicitly planned. Peter the Great used the sad experience of Alexey. The reform followed the plan worked out well in advance. At the preparatory stage the new mechanical stamps were bought, new mints were built. In 1696 they started to make dated silver kopecks, having prepared people to the coming changes in the monetary system. From 1700 emission of small copper coins was started. From 1704 copper coins were stamped in parallel with silver ones. The weight standard of stamped copper changed gradually. In 1718 the stamping of small silver wire money was terminated. Peter the Great undertook more large scale and significant reforms having suppressed the opposition. The tsar reorganized and rebuilt the army and the fleet, changed the taxation, created a practically new administrative system, introduced Western cultural standards.

Table 4. *Conditions for Monetary Reform: Credibility and Gradualism*

Monetary Reform (MR)	Period of MR	Reasons for MR	Nominal to Internal Value Ratio of Copper Coins	Steps	Results of Other Implemented Reforms
Aleksei Mikhailovich "Quietest One" (1629-1676)	1654-1666	Wars, shortage of money, backward monetary system, geographical expansion.	Since 1654 approximately <u>60 times</u>	1. 1654 – initial attempt 2. 1655 – massive emission of copper coins 3. Replacement of all small silver money 4. Huge inflation, "copper riot" and reversal of the reform	Taxation Reform led to «Salt Rebellion» Church Reform led to the "Schism of Old Believers"
Peter the Great (1672-1725)	1698-1724		1700 – 1,6 1701-1704 – 1,93 1704-1717 – 2,5 <u>1718 – 5-8</u> (not all coins)	1. Preparatory stage – new mints 2. Dated silver coins 3. Copper kopecks (since 1704) 4. Parallel emission of silver and copper coins till 1718	Military, Tax, Administrative and Cultural Reforms had no reversals.

Concluding remarks

There so many wrong ways of doing things and so few right ones"
Ronald Coase's Interview, ISNIE 1997.

We argue that government credibility or the ability to establish reputation enhanced by gradual and consistent policy was crucial for the success of Peter the Great and the failure of Alexei Mikhailovich monetary reforms.

As the measurement of credibility (for monetary reforms introducing token money) the following indicators proved to be consistent: the supply of token money, the ratio of nominal to intrinsic value, the inflation and the price stability, the amount and profitability of counterfeit money, the exchange of token to real money (in our case of copper to silver money).

Both rulers sought to reform the archaic system and to find new fiscal sources of revenues by introducing copper coins. The main focus of our study has been to show the relationship between the final result of the reform and credibility. The first reform (1654-1666) failed and led to a huge "copper coin riot". We hold that a gradual plan for the second reform (1698-1724) and its consistent implementation were essential for the success of Peter the Great's monetary reform.

The aim of Aleksei's MR was to replace of all silver money with copper coins, which led to complete collapse and reversal of the reform in 1663. Whereas Peter the Great used gradual strategy, and the percentage of copper coins in cash circulation accounted for 8,1 % in 1700-1730. The debasement of silver coinage gave Aleksei the possibility to pay 60 times less for copper coins in comparison with silver ones. During the Peter the Great's reforms the weight standard of stamped copper changed gradually. The nominal/metal ratio was approximately 2 in 1700 and reached at least 5 in 1718.

Government credibility is enhanced also by *gradualism* of the reforms which usually helps to keep up the reputation. The first attempt of Aleksei to introduce copper coins in a parallel circulation was successful. Everyone had to take silver and copper money as having the equal value. The first years after the emission of copper equivalent the measure seemed to work. Unfortunately, another premature step was taken: replacement of all silver money with copper coins. It led to hyperinflation in 1662. All copper money had to be withdrawn from circulation in 1663. Copper coins were not perceived as an authentic equivalent of silver, people used every opportunity to get rid of them. In contrast, Peter the Great used more long-run strategy and committed credibly. Peter the Great's MR was carried out stepwise. Its implementation took more than 20 years; it was well-designed and explicitly planned.

What were the results of other implemented reforms: e.g. military, church, judicial? During Aleksei's long reign (1645-1676) geographical expansion of Russia went fast but almost all reforms undertaken by the tsar and his favorites failed. The increase of salt tax resulted in "the salt rebellion" of 1648. The ecclesiastical reform undertaken by Patriarch Nikon resulted in a split and a permanent cleavage among the Russian believers. Peter the Great, in contrast, undertook more large scale and significant reforms having suppressed the opposition. The tsar reorganized and rebuilt the army and the fleet, changed the taxation, created a practically new administrative system, introduced Western cultural standards.

Thus, we have shown how credibility and gradualism formed the necessary condition for making monetary reform successful. The results of the research could explain better the development of trade and credit market in these two centuries and could be applied to the monetary reforms that introduced paper money. The research could be enlarged by studying the introduction of token paper money in the XVIII century Europe and Russia and comparisons with copper money introduction in Spain, Sweden and other European countries. Another important issue for the future research could be the study of the enforcement mechanism of establishing a reputation and the restraints of the ruler.

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