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**PETER THE GREAT'S MONETARY
REFORM AND MONEY SUPPLY
IN RUSSIA IN 1698–1711**

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PETER THE GREAT'S MONETARY REFORM AND MONEY SUPPLY IN RUSSIA IN 1698–1711²

The purpose of this paper is finding a method of calculating or at least reliably estimating the money supply in the 1710s' Russia. The estimation is based on Gresham's Law that states: "Bad money drive out good money." The "good" and "bad" monies of Petrine era are identified. I argue that the "good" money was driven out by 1705 and, therefore, the emission of "bad" money in 1705–10 increased money supply. The increase is estimated to be about 40 percent. This conclusion calls for a further investigation of price dynamics of the period to determine effects of the increase.

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The main purpose of this paper is essentially a technical one, that is, finding a method of calculating or at least reliably estimating the money supply in the 1710s' Russia — or, for that matter, in any country with limited, centralized, bureaucratically controlled, and fairly well-documented production of metallic money. The estimation is also of a particular interest to the Petrine studies, being effectively an estimation of the only source of funds available to Peter, who lacked any substantial credit throughout his reign. In other words, I seek to “take blood pressure” in Russia’s “artery of war” during and in the immediate aftermath of Peter’s monetary reform.

It has to be said from the outset that the very concept of money supply was alien to the Russian economic thought of the time. It originates with the quantity theory of money which seems to have been unknown in the 17th and early 18th century Russia. Of the two authors who might be called, albeit with great reserve, economic theoreticians of that age, Juraj Krizanic subscribed to the metallic theory, which links the purchasing power of money to its intrinsic value, that is, to the market value of the metal it is made of (Krizanic 1997, 357–8). Ivan Pososhkov’s thinking on monetary matters, on the other hand, was closer to nominalism. That is to say, he held that it was a sovereign’s decree giving money its purchasing power (Pososhkov 1951, 238). There is no indication that Peter or anyone else involved in the Petrine monetary policy ever considered the problem of quantity of money in circulation or its relation to prices.

By Peter’s time, the Russian monetary system was more than 150 years old. It was established in the 1530s, in the reign of Grand Princess Elena Glinskaya (Ivan the Terrible’s mother and regent during his childhood) in place of multiple systems of appanage principalities. The basic unit of account was a silver rouble, weighing initially 68 g. By the mid-17th century it had been depreciated to 45 g of silver. Rouble existed only as a unit of account, expressed physically only in 100 tiny coins, kopeks.

Lacking her own silver mines, Russia depended on importing bullion from the West. In the 17th century, it arrived mostly by way of the Archangel Fair in the form of German and Dutch thaler coins, known in Russian as *efimki*. They were brought to a mint in Moscow to be melted down and recoined into kopeks. Russia’s position on world bullion flows was in some respects similar to that of the East Indies: she imported bullion and exported raw materials, such as potash, hemp, and tallow. Trading in these goods was heavily regulated and, at times, directly monopolized by the state in order to maximize the inflow of silver for coinage.

By the mid-17th century, foreign merchants were obliged to exchange their thalers at an official moneychanger’s at a fixed rate. According to the Trade Statute of 1667, two thalers bought one rouble, with the Russian money considered to be made of pure silver and the “best thalers”

having the fineness of 82 to 84 per 96 (*Rossiyskoye zakonodatelstvo*, vol. 4, 126, 128). With ruble weighing 47 g and thaler, 28 g, this amounted to 23.5 g of silver in rubles equaling approximately 24.5 g in thalers. In 1681, ruble was further depreciated, now containing only 40 g of silver (Melnikova 1989, 228–9). A new exchange rate was established at 55 kopeks per thaler.

Incessant warfare and building up of a standing army, along with expanding bureaucracy, increased state's demand for money throughout the 17th century. Already by the time of the Thirteen Years' War with the Polish-Lithuanian Commonwealth (1654–1667), it was all but impossible to fully provision the army in kind. In an attempt to overcome the cash deficit, Tsar Alexis introduced copper money in 1654. Facing rampant inflation, riots in Moscow, and mutinies in the army, he had to abort the reform in less than 10 years (Bazilevich 1936).

The scarcity of silver and the deficit of cash in state coffers was one of Peter's key problems in the outset of his wars and reforms. He took his first steps to solving it in August 1698, mere three days upon returning to Moscow from the Grand Embassy.

The reform was, first and foremost, another debasement, lowering the silver content of ruble from 40 g to 28 g (that is, by 30 percent). The measure was drastic, and both Peter's government and his subjects had to deal with inflation that inevitably ensued. However, it is highly doubtful that Peter would have been able to finance his war effort and other endeavors without the debasement. As P. N. Milyukov famously put it, "Russia became a great European power at cost of being severely impoverished" (Milyukov 1905, 546).

But there was more to the reform than just the debasement. Peter succeeded where his father, Alexis, had failed about 50 years before: he managed to introduce copper coinage in Russia. Furthermore, by 1704, when the new monetary system was fully in place, for the first time in history all the traditional Russian units of account were expressed in actual coins: *polushka* (1/4 kopek), *denga* (1/2 kopek), *altyn* (3 kopeks), *grivna* (10 kopeks), *poltina* (50 kopeks) and ruble (100 kopeks).

The 28-gram silver ruble was, in essence, a Russian thaler. It corresponded not only to the *Reichsthaler* of the Holy Roman Empire, but also to the Spanish *peso de ocho*, the Swedish *riksdaler*, the Dutch *leeuwendaalder*, etc. Thus, Russia joined a growing global community of trading nations within which thaler was the most common currency.

Peter's monetary reform is commonly overlooked in studies of Peter's reign as well as of monetary developments in Europe from the 16th to the early 18th century. It was barely mentioned by some historians of the Petrine reforms, notably N. G. Ustryalov (vol. 3, 350–4), and omitted

altogether by most of them, including, more recently, A. B. Kamensky (2001) and E. V. Anisimov (1989). An important exception in the late 19th century historiography was Milyukov who explored the monetary reform in some detail in his study of Peter's fiscal policy. Several essays on monetary history have been written in the 19th century, mostly by liberal officials and intellectuals involved in Alexander II's Great Reforms and later Sergei Witte's economic reforms (Arsenyev 1846; Lamansky 1854; Kaufman 1910). They relied heavily on studies of numismatists as well as metrologists (Chaudoir 1837; Zablotsky 1854; Prozorovsky 1865).

Of those researchers, K. I. Arsenyev was the first one to attempt an estimation of the money supply, though it was not particularly insightful. Arsenyev summed all the yearly data of money creation from 1698 until the end of Peter's reign. The result was approximately 28 million rubles, which Arsenyev took to correspond to the money supply in 1724. This was, of course, an utmost oversimplification, as several changes of monetary standard were not taken into account.

In 1971, B. N. Mironov argued that in the 18th century Russia experienced a "price revolution" akin to its European namesake of the late 16th and early 17th century. Mironov offered an essentially monetarist explanation of the phenomenon: prices were driven up by the growth of money supply (Mironov 1971). There is a general assumption that money supply was still quite low and Russia experienced a chronic cash shortage throughout the 18th century that greatly perplexed development of commerce and banking. However, no definite evidence has ever been presented to support this notion. Mironov attempted to estimate the money supply dynamics throughout the 18th century but based his calculations on limited data and, furthermore, did not fully explicate them.

The first — and, to this day, the only — post-Soviet work on the monetary history of the 18th century Russia, seeking to synthesize numismatics, economics, and history, was A. I. Yukht's "Russian money from Peter the Great to Alexander I" (1994). However, Yukht focused mostly on fiscal policies and largely disregarded cliometric analysis.

The method I propose to estimate money supply is based on Gresham's law, which states that "bad money drives out good money." The law was known in the Western intellectual tradition at least since Nicholas Oresme's *De moneta* of the mid-14th century and Nicholas Copernicus's *Monetae cudandae ratio* of the early 16th century. In 1990s Robert Mundell restated the empirical law as a theorem and went on to prove it within the neoclassical framework, that is, assuming economic agents to be rational and utility-maximizing (Mundell 1998).

"Good" money in the context of Gresham's law is the money that is relatively more trusted. Thus, in a metallic monetary system, a coin containing more silver is "better" than a debased one,

and a silver coin is “better” than a copper one, even if their face values are by fiat the same. A rational economic agent prefers spending the “bad” money while hoarding the “good” money. It may be more profitable to melt the “good” money down and sell it as bullion than to use it in commerce. It may also be profitable to export the undervalued “good” money to where its value is relatively higher. Hoarding, melting, and exporting are three primary mechanisms of driving “good” money out of circulation. A state may take its part in the process by buying “good” money from people in what in Medieval Europe was called *renovatio monetae* (“renewal of coinage”). The state would then proceed to melt the “good” money down to produce “bad” money.

Peter’s monetary reform introduced copper money and depreciated silver money, thus introducing “bad” money and initiating the process described by Gresham’s law. The *renovatio monetae* instrument was employed: by the Tsar’s decree of 1701, any person could sell old money to a mint and collect new money with 10 percent premium (PSZ, vol. 4, no. 1855, 168). The state, having debased money by 30 percent, preferred to lower its profits to just 20 percent in order to get the profit faster. Still, “good” money, that is old silver kopeks weighing 0.4 g, did not disappear instantly. It took time for mints to produce enough new money to replace them and still more time for the new money to proliferate.

While the process of new money driving out old money was going on, the money supply had to be more or less stable, as hoarding, melting, and exporting of old kopeks compensated for the new coins being produced. However, there had to be a point in time when all the old money had been driven out of circulation. At that point, the amount of new money had to be at least roughly equal to the amount of the old money it drove out, much like, according to Archimedes’ principle, the weight of an object immersed in water equals the weight of the water it displaced. After that point, newly issued money increased money supply, and inflation ensued (Bernholz 2003, 114–134).

Therefore, the problem of estimating the money supply at the first stage of the monetary reform comes down to specifying the moment when all the old money had been driven out and summing up all the emissions of the new money from the beginning to this moment. Hence, two data series for 1698 onwards are needed to estimate the money supply: yearly new money emissions and old money withdrawals from circulation.

Money creation in Russia in the late 17th and early 18th century was controlled by the Chancellery of the Grand Treasury (*Prikaz Bolshoi kazny*). Its archives have been lost in the 18th century. However, it is known that it had contained records of emissions at least since 1664 (after Tsar Alexis’s aborted monetary reform), and yearly records since 1681 (an overhaul of financial

administration under Tsar Feodor). In the 1760s and 1770s Ivan Schlatter and Andrei Andreevich Nartov of the Monetary Department of the Collegium of Mining compiled a register of gold and silver money emissions from the 17th century to their time, commonly referred to as “Nartov’s register” (*vedomost’ Nartova*) (RGADA, f. 19, d. 165, l. 46ob–47; published in Schlatter & Nartov 1832). They definitely used some of the Grand Treasury documents that have been lost since. Back in 1757, Schlatter, in a report to the Senate, stated that the Monetary Chancellery (which was to become the Monetary Department a few years later) had in its archives mint papers only from 1719 onwards. He also mentioned a “register of recoinage from 1702 onwards signed by Comptroller Kirillov.” Schlatter complained that he had had no access to older mint documents that probably had been lost in a big fire in Moscow (Georgy Mikhailovich 1896, 214).

As for the Petrine copper money, a register of emissions compiled by the Collegium of Mining in 1723 is available in the Senate’s papers (RGADA, f. 248, op. 13, d. 683, l. 244ob–245).

There were five mints producing new money in the first decade of the 18th century, all of them in Moscow. Four of them were controlled by the Grand Treasury, while the fifth one was a part of the Naval Chancellery (*Prikaz voinskikh morskikh del*). The Grand Treasury was headed by Prince Peter Prozorovskii, a senior courtier, who was thusly rewarded for promptly siding with Peter during his showdown with Tsarevna Sophia in 1689, but had never been really close to the Tsar. The Naval Chancellery, on the other hand, was headed by Fedor Golovin, Peter’s right-hand man at the time. Ambassador Charles Whitworth of England wrote of Golovin in 1706: “All the foreign affairs, the minting of money, the providing arms, the building of the ships, naming and paying of the officers was under his direction” (Whitworth 1884, 299). While it is not technically true that all the minting of money was under Golovin’s direction, the mint of the Naval Chancellery was in fact the model venue where most of the innovations were first implemented (Durov 1978).

Most of the records of the mints have been lost. However, significant data from 1701–1710 have survived in ledgers of the *prikazes* that had been reported to the Privy Chancellery (*Blizhnyaya Kantselyariya*) (RGADA, f. 396, op. 3, d. 1, 18, 35, 37, 60, 66, 86, 96, 105, 111, 123, 128, 139, 144, 157, 163; f. 19, d. 2; f. 16, d. 554). The figures of money emissions in the mint records are somewhat different from Nartov’s register but show the same general dynamic. The most significant difference is over 436,000 rubles in 1702, while in the other years it rarely exceeds 10,000 and never exceeds 65,000. In this paper, I prefer the figures of the mint records to those of Nartov’s register though sometimes I have to rely on the latter.

A mint record has a typical form: “In mints, in [so many] meltings, [so much] silver has been melted down, including [so much] old money, [so much] *chekhi* (Polish token money

circulating in Ukraine), [so much] *efimki* (thalers), [so much] silverware. In the meltings, the silver has been reduced by [so much]. Thus, [so much] silver has been set to production. Whereupon [so much] money of the due standard has been produced. All charges deducted, [so much] profit has been made.” After this, an analogous, though less detailed, account on copper money followed.

The distinction of four types of bullion (old money, *chekhi*, *efimki*, silverware) was needed to better calculate profits. Each type had further subdivisions. Old money came from taxes (*okladnye*), transfers from other *prikazes*, and buying it from the public either directly or via contracted merchants. The thalers came mostly from the Archangel Fair in customs duties and payments for goods sold by the state. Foreigners also sold some thalers to either state agents or private profiteers. Most of those eventually found their way to a mint. Silverware was also bought from the public directly or via contractors, and there was a decree on its fineness issued in 1700 (PSZ, vol. 4, no. 1759, 8–9) to facilitate the process.

Thus, the mint records contain new money creation data as well as data on old money withdrawals from circulation. Therefore, it is possible to apply the method described above to estimate the money supply.

Firstly, we need to specify the moment when all the old money had been withdrawn from circulation. To do this, we begin by analyzing the data on the bullion used in coinage.

Year	Old money	<i>Chekhi</i>	Thalers	Silverware
1701	2341	66	1541	
1702	3932	169	287	673
1703	2148	39	723	218
1704	957	15	481	74
1705	612	50	107	—
1706	757			
1707	N/A			
1708				
1709	877			
1710	1227			

Tab. 1a. Bullion types, the Grand Treasury mints (*pudi*³)

³ 1 *pud* ≈ 16,4 kg.

Year	Old money	<i>Chekhi</i>	Thalers	Silverware
1701	483	—	—	—
1702	3,224	—	352	134
1703	1,131	—	451	103
1704	491	—	355	128
1705	318	—	260	22
1706	N/A			
1707⁴	743	12	150	
1708	430	—	474	
1709	N/A			
1710	35	—	1,332	

Tab. 1b. Bullion types, the Mint of the Naval Chancellery (*pudi*)

We have to distinguish between “old bullion” and “new bullion”. The former is the silver that had already been circulating as money and withdrawn from circulation only to be returned. The latter is the silver that had not been used as money in Russia before. The “Old money” columns of tables 1a and 1b correspond to the “old bullion” while the other three, to the “new bullion”. Hence, yearly changes of relative shares of the “old” and the “new” bullion may be measured.

⁴ Excluding 68 *pudi* of silver, the type of which is not accounted for in the record, that were used to produce milled coins.

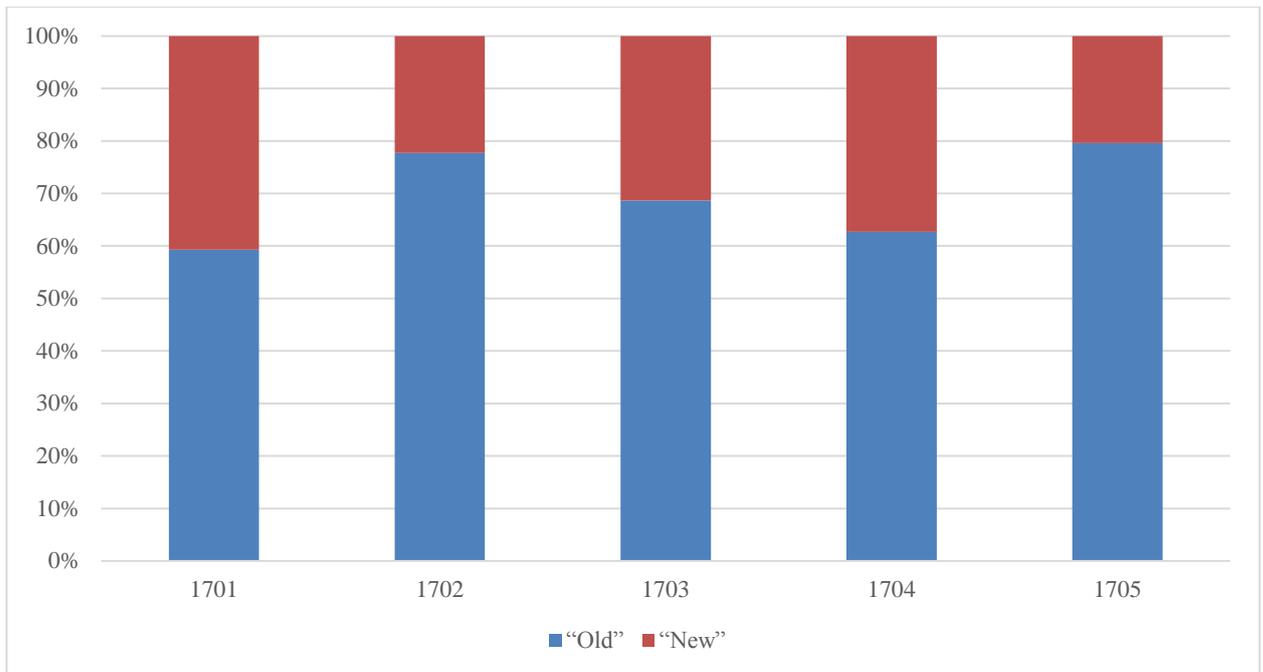


Fig. 1a. Relative shares of “old” and “new” bullion, the Grand Treasury mints

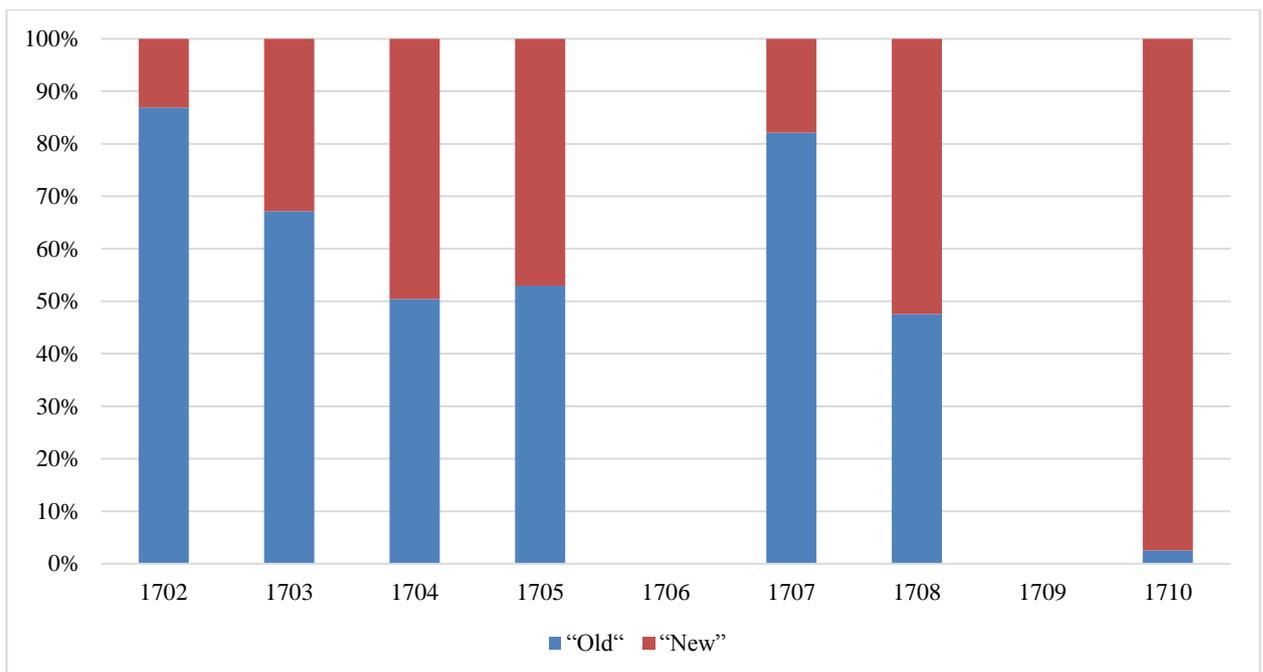


Fig. 1b. Relative shares of “old” and “new” bullion, the Mint of the Naval Chancellery

It has to be noted that not all the “old bullion” came directly out of circulation. From 1704 onwards, according to the registers, most of it came in large bulks that seem to be hoards stored for several years before making its way to a mint. Those included, for example, over 40,000 rubles in old kopeks confiscated from the Shustovs merchant family in 1704 (RGADA, f. 248, op. 5, d. 218, l. 51, 163ob–4; f. 9, op. 3, otd. 2, d. 3, l. 491). In 1705, the Mint of the Naval Chancellery melted

down more than 17 *pudi* (approximately 280 kg) of silverware that once belonged to Franz Lefort and was deposited in the Armory (*Oruzheinaya palata*, also headed by Fedor Golovin) since his death in 1699 (RGADA, f. 160, 1705, d. 16, l. 104).

The mints did not store the bullion for long. In 1702, out of the 5059 *pudi* of bullion obtained by the Grand Treasury, 4964 were melted down for coinage. From 1705 onwards, most of the “old” bullion melted is labelled in the records as “leftover,” that is, taken from what little storage was available. The increase of “old bullion” share in 1707 seems to be attributable to a massive melting down of silver from state coffers (from “the Treasury, the Patriarchate, monasteries, and wherever it is to be found”) that had been ordered by Peter in April in anticipation of Charles XII’s invasion of Russia (PiB, vol. 5, 195).

It is also notable that the Grand Treasury officials discontinued the distinction of the four types of bullion in their records after 1705, probably because there was too little left to distinguish.

A further insight into the monetary dynamics of 1701–6 is provided by letters from dyak Yakov Borin of the Mint of the Naval Chancellery to the head of the *prikaz*, Fedor Golovin. As early as 1702 he complained that “there is much less old money compared to what we had before” (RGADA, f. 160, 1702, d. 20, l. 4ob). In April 1703 he stated that “no old money is brought for exchange”, and in June, “I hear that there is no old money in any *prikaz*”, adding that he had to send his agents to seek for old money in Siberia, as it was not to be found anywhere closer (*ibid.*, l. 33, 48ob).

Finally, in 1704, copper coinage was invigorated: the quantity of money made out of a *pud* of copper was raised from 15.44 to 20 rubles; copper coinage was introduced in the Mint of the Naval Chancellery. Copper coins production grew from 9,401 rubles in 1704 to 94,813 rubles in 1705 and remained close to 100,000 rubles per year for the rest of Peter’s reign.

This evidence seems sufficient to conclude that the government felt that it had ran out of old money in circulation by 1705 and had to rely on other sources of bullion. Thus, complete replacement of the old money with the new money took place in 1698–1704. Therefore, the money supply of this period roughly equals the sum-total of all the emission during these years.

Year	Silver	Copper	Total
1698	471,810	—	471,810
1699	671,861	—	671,861
1700	1,992,872	8,837	2,001,709
1701	2,561,471	3,724	2,565,195
1702	4,969,248	7,128	4,976,376
1703	2,614,246	10,375	2,624,621
1704	1,421,931	9,401	1,431,332
Sum-total:			14,742,904

Tab. 2a. Money emission, 1698–1704, rubles

Thus, by 1705, there were approximately 14.7 million rubles in circulation in Russia. With the ruble containing 28 g of silver, it corresponds to approximately 413 tons of silver equivalent.

To put this figure in perspective, in 1701–1725, 415 tons of silver were imported to Europe from the New World yearly. Estimated 53 tons per year ended up in Russia, Poland, and Eastern Prussia, paying for their goods bought by Western merchants (Barrett 1990, 224–54).

The debasement of Russian money inevitably led to its exchange rate plummeting. According to Borin’s reports to Golovin, on the Archangel Fair, thaler costed 60 kopeks in 1702 and 66 kopeks in 1703. In 1704, with the introduction of a new ruble coin, Austrian ambassador Otto Pleyer reported to Vienna that the price of a thaler rose from 50–60 to 120 kopeks (Ustryalov, vol. 4, part 2, 630). Whitworth wrote to Secretary Harley in 1707 that 110 kopeks came to correspond to a crown (5 shillings), whereas previously ruble equaled 10 shillings (Whitworth 1884, 361–2). In other words, the exchange rate of ruble plummeted more than by half.

Year	Silver	Copper	Total
1705	765,430	94,813	860,243
1706	645,492	100,376	745,868
1707	507,596	135,789	643,385
1708	753,938	71,836	825,774
1709	1,271,424	93,170	1,364,594
1710	1,482,927	112,864	1,595,791
Sum-total:			6,035,655

Table 2b. Money emission, 1705–1710, rubles

In 1705–10, over 6 mln rubles were produced, bringing the money supply to approximately 20.8 mln rubles, or 582 tons of silver equivalent, up by about 40 percent from the 1704 level. The increase is impressive considering the diminishing silver inflow. Furthermore, in 1707–8 the bullion was partially used to produce *tymf*'s, coins of Polish design intended to pay the troops in Poland (Rybtsevich 1995, 104–90). Measures like giving the Naval Chancellery control over the silver trade in Moscow (PSZ, vol. 4, no. 2177, 397–8) allowed to keep producing new money. The bullion grew dearer and profits from coinage were falling. Such were monetary circumstances when Peter established the Senate and entrusted it with full authority in monetary matters in 1711.

The debasement of ruble and the fall of its exchange rate inevitably caused imports prices to rise. According to the aforementioned diplomats as well as Captain John Perry (1871, 160–1) and the Monetary Office's report to the Senate of 1729 (Georgy Mikhailovich 1901, 21), the prices had risen twofold. All these sources deal in nominal terms. In real terms, that is, in conversion to silver equivalent, the price rise did not look quite that dramatic, for the new ruble contained 30 percent less silver than the old one. By the end of the 1710s, ruble had its rally. In 1711, the Senate fixed the exchange rate at 85 kopeks per thaler (DiP, vol. 3, book 2, 1320).

What effect the reform had on domestic prices is a rather complicated issue. The increase of money supply by 40 percent in the span of five or six years had to cause a sharp increase of prices, whether the government and the public appreciated the concepts of the quantity theory of money or not. This theoretical prediction is only partially supported by scholarly investigations. Back in the

1880s, V. O. Klyuchevsky estimated that prices had risen twofold during Peter's reign (Klyuchevsky 1990, 113–8). In 1970s, Mironov arrived at a similar conclusion based on his study of bread prices (Mironov 1985). However, their findings were based on limited evidence: either contemporary narrative accounts or official regional registers of prices. *Prikazes*, monasteries, estates, etc. scrupulously documented their expenditures and prices, and their ledgers may be used to reconstruct the history of prices. But it has not been done to this day.

The increase of money supply in 1705–10 proved insufficient to cover all the state expenses as the war dragged on. In August 1711, the Senate went for a new debasement, this time by decreasing fineness of smaller silver coins, that is, those used in domestic commerce (PSZ, vol. 4, no. 2416, 728). Ruble coins used in export/import operations remained relatively pure, so that their depreciation would not cause further fall of exchange rate and disruption of all-important foreign trade. It was effectively an introduction of another “bad money.” A new round of new money driving out old money ensued.

The Petrine system persisted for about 140 years. It was effectively a commodity money. Its purchasing power was determined by the amount of silver in a coin, with copper coins being a subsidiary money perceived to have no intrinsic value. Under Peter, the mints were commonly used to credit government establishments such as the Armory, the Ambassadorial Chancellery, or the Order-in-charge Chancellery (RGADA, f. 160, 1702, d. 20, l. 39; 1703, d. 24, l. 20–1; 1704, d. 31, l. 14–14ob, 43ob). By the 1730s, the mints credit was extended to the public (PSZ, vol. 9, no. 6300, 6–7). In 1754, Empress Elizabeth established the first Russian bank that took over the credit operations (PSZ, vol. 14, no. 10 235, 87–94). From this point on, to calculate money supply, one has to take into account not only the cash minted but the credit as well. Paper money introduced by Catherine II in 1769 was essentially a further modification of Petrine system, with one subsidiary money, assignats, partially replacing another, copper coins.

The system was dismantled in the 1830–40s, under Finance Minister Yegor Kankrin, to be replaced with a credit system.

Knowing the reference level of money supply, which is the 14.7 mln rubles in 1705, it is possible to apply the method described above to calculate cash supply for any point in time between the 1700s and the 1830s.

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