NEW TEXTS

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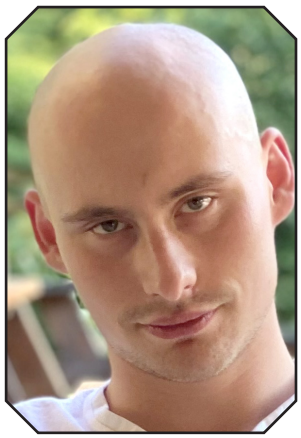
The Problem of the Digital Ruble Adoption Among Russian Small Entrepreneurs: Choice, Enforcement, and Social Networks in the Social Construction of Trust



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Abstract

This paper explores the adoption process of the digital ruble among Russian entrepreneurs. The digital ruble, as a new currency, will be a direct liability of the Central Bank of Russia and will be technologically and informationally centralized around it. One of its significant features is its potential to diminish the role of private banks in the Russian financial system while increasing transaction transparency. To identify the mechanisms and incentives for adopting the digital ruble, we conducted twelve semi-structured interviews with small business owners in Russia who have experience with various payment systems.

Our empirical findings reveal three main adoption mechanisms: choice, enforcement, and social network effects. The choice mechanism involves voluntary adoption based on the digital ruble's perceived advantages, such as lower transaction costs and greater convenience compared to other payment systems. The enforcement mechanism reflects the influence of direct incentives or mandates from monetary authorities, such as legal requirements or wage policies. Social network effects describe the impact of a critical mass of users, which indirectly encourages entrepreneurs who might otherwise be hesitant to adopt the digital ruble.

We contribute to the sociological literature by identifying and structuring these adoption mechanisms, bridging gaps between different theoretical perspectives. From a policy-making standpoint, we analyze the positive and negative aspects of the digital ruble and discuss its potential role in the Russian economy. We conclude by considering how digital monetary advancements, including central bank digital currencies like the digital ruble and cryptocurrencies, could influence trust in money and monetary concepts, posing new challenges for the social sciences.

Keywords: digital ruble; central banks digital currencies; adoption; entrepreneurs; social network effects; two-sided market; sociology of money.

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Introduction

Thirty years ago, Viviana Zelizer discovered that money holds multiple meanings depending on the social context in which it is used [Zelizer 1994]. Today, we observe that not only are the social meanings of money varied (or, following Zelizer, 'multiple') but also that various forms of money differ both physically and descriptively [Dodd 2014; Feinig 2022]. These forms and their cultural descriptions vary from one society to another. Thus, money is embedded in social relations and cultural contexts at both societal and everyday levels [Guseva 2008; Dodd 2017a; 2017b; Guseva, Rona-Tas 2017; Kinney 2021].

With the digitalization of the economy and social life in general, monetary forms are also becoming digital, allowing for the evolution of multiple forms of money. In addition to the well-known and widely used electronic money provided by private banks through familiar banking apps, recent decades have brought about relatively decentralized and independent monetary forms such as cryptocurrencies and stablecoins [Çalışkan 2023]. While the most advanced users can easily access these sophisticated monetary forms, some parts of the population still experience monetary exclusion due to a lack of digital infrastructure [MIT Media Lab 2023]. At the same time, geopolitical instabilities, rising inflation, and economic sanctions blur the future of the dollar as a global reserve currency used for international trade [Credit Suisse Research Institute 2023; Mayer 2024]. All these factors contribute to the emergence and introduction of a new form of money: central bank digital currencies (hereafter, CBDCs).

Interest in CBDCs is worldwide. At least 86% of central banks have begun developing CBDCs and are now at different stages of the process, from research to the launch of pilot projects [Lloyd 2020; Popescu 2021]. Along with China, the Bahamas, and Sweden, Russia is one of the most advanced countries in this regard. In the fall of 2020, the Bank of Russia announced the development of the digital ruble, and on July 24, 2023, the Russian president signed the law introducing the digital ruble into the Russian economy [Federal Law 2023]. According to the Consultation Paper issued by the Bank of Russia [Bank of Russia 2020], the digital ruble will be a form of money in addition to existing legal forms of national currency: cash and electronic money. The key feature of the digital ruble is that it will be a direct liability of the Central Bank and will be centralized both technologically and informationally. The role of private banks in the control and mediation of the digital ruble will be significantly limited. A useful parallel is to view the digital ruble as cash in digital form.

CBDCs, including the digital ruble, have economic, technological, and social aspects, which can be considered advantages but also challenges for the economy and society [MIT Media Lab 2023]. From an economic standpoint, CBDCs can simplify macroeconomic policy implementation, increase volatility, unify na-

tional and international exchange systems, and break the zero-bound interest rate (the latter is less applicable to the Russian macroeconomic situation) [Elsayed, Nasir 2022; Ozili 2023]. Technologically, CBDCs are expected to provide payment safety and privacy, improve financial accessibility due to the offline payment option [Broby 2022; Dionysopoulos, Marra, Urquhart 2024]. However, there is also the possibility of increasing financial control over the population. From a sociological perspective, the digital ruble, as a new monetary form, faces the problem of *adoption* by different social groups: before it is introduced, no one has a reason to use it [Guseva 2008; MIT Media Lab 2023].

The adoption of new forms of money involves different social groups, including customers (households), monetary authorities (the Central Bank, private banks), and entrepreneurs. This market structure is often referred to as a two-sided market [Armstrong 2006; Rochet, Tirole 2006; Guseva 2008; Arifovic, Duffy, Jiang 2023] since it involves two major groups (clients and entrepreneurs) mediated by a platform (in the case of CBDCs, the Central Bank) in which any additional user contributes to the expansion of the social network. Until now, the problem of CBDC adoption has been studied primarily from the perspective of monetary authorities, considering aspects such as the motivations of central banks, macroeconomic implications [Auer et al. 2022], and the impact of national cultural values [Luu et al. 2023]. Other research has focused on households and their incentives to adopt CBDCs; among others, factors such as trust in monetary authorities, knowledge about CBDCs, and price incentives have been analyzed [Bijlsma et al. 2024; Li 2023].

This paper focuses on entrepreneurs' incentives to adopt the digital ruble. To our knowledge, this is the first study of CBDC adoption that focuses on *entrepreneurs* as a research site. Although the digital ruble has not yet been widely introduced in the Russian economy and is still in the pilot phase, the expertise and experience of Russian entrepreneurs may provide insights into the potential benefits and trade-offs the digital ruble could bring compared to current payment systems. This study, therefore, addresses the following questions: What role can the digital ruble play in the Russian economy compared to other payment methods? In this context, what are the motivations and incentives for entrepreneurs to adopt it? What social mechanisms of digital ruble adoption might small Russian entrepreneurs experience? We provide a framework that distinguishes among three main mechanisms of digital ruble adoption: *choice*, *enforcement*, and *social network effects*. Using expert interviews conducted with 12 small Russian entrepreneurs from 2020 to 2023, we examine the drawbacks of current payment systems and analyze how the digital ruble can be integrated into the architecture of existing payment mechanisms. We also explore entrepreneurs' experiences dealing with customers, monetary authorities, and private banks to understand how these market participants might incentivize entrepreneurs to adopt the digital ruble.

We specifically focus on small Russian entrepreneurs because they are expected to have more flexibility and choice in adopting the digital ruble. Large corporations, especially given their historically close relationship with the state [Boutillier 2008; Bessonova 2018], tend to follow government directives when implementing new payment methods and are more likely to integrate new technologies. In contrast, small entrepreneurs have more autonomy in deciding whether to adopt a new form of money. For some companies, it might be cheaper not to adopt digital infrastructure for electronic payments, even if it would be more convenient for their customers [Radaev et al. 2012]. Moreover, monetary adoption could be challenging in developing countries (including Russia) with unstable institutional environments and low levels of trust [Avdeeva 2019; Horne, Nickerson, DeFanti 2015; Gunawan, Langgu Sinaga, Purnomo 2019]. Research on small entrepreneurs' attitudes toward digital ruble adoption can provide a range of narratives [Small, Calarco 2022] and shed light on different logics that may influence the decision-making process regarding the digital ruble adoption.

Our study is designed to combine insights from three interrelated bodies of work and aims to contribute to each accordingly. First, we draw on the interdisciplinary literature on the adoption processes of payment systems in two-sided markets, where a platform establishes matches between two groups: customers and en-

trepreneurs [Armstrong 2006; Rysman 2007; Guseva 2008; Boudreau, Jeppesen 2015; Bijlsma et al. 2024; Li 2023; Arifovic, Duffy, Jiang 2023; Alora, Sahoo, Sasidharan 2024]. Second, we provide a conceptualization of CBDCs, and the digital ruble specifically, as a centralized form of fiat money in digital form that offers some potential improvements but also poses challenges for society compared to current electronic payment systems [Barontini, Holden 2019; Auer et al. 2022; MIT Media Lab 2023; Dionysopoulos, Marra, Urquhart 2024]. Our focus is not on macroeconomic implications, but on the positive and negative social impacts that the digital ruble might bring to Russian entrepreneurs, as well as the broader economy and society.

Third, we seek to situate the empirical study of digital ruble adoption as a specific form of money within the broader context of sociological studies of money. The idea of multiple meanings of money has become a classic in its understanding within the so-called relational work perspective, which underscores cultural meaning-making processes ('not all dollars are the same') [Zelizer 1994; Bandelj 2012]. However, not only do cultural context and relational work make money varied (or, in Zelizer's terms, 'multiple'), but monetary systems also differ according to their material, economic, and social organization [Ingham 2004; Dodd 2014; 2017a; Feinig 2022; Çalışkan 2023]. In this light, what becomes puzzling is how these monetary systems acquire social and cultural recognition when entering microsocial contexts [Polillo 2011; 2022]. Therefore, the sociological study of digital ruble adoption, as a social process situated in time and space, provides new insights into how the social meaning of money is created at the intersection of macro monetary systems and the specific micro context of its usage.

Theoretical Backgrounds: Digital Ruble as a New Form of Money

Characteristics of the Digital Ruble and Its Differences from Other Forms of Money

Despite the ongoing attention of different countries to the development of CBDCs, as well as the growing interest of economists [Kochergin 2021; Auer et al. 2022; Oh, Zhang 2022; Dionysopoulos, Marra, Urquhart 2024], this topic has been relatively neglected by sociologists. A few exceptions include social studies of CBDCs focusing on the issue of financial exclusion. For example, Campbell-Verduyn and Giumelli [2022] explore the African blockchain and decolonial ambitions in the evolving finance infrastructure. They provide evidence that relatively advanced stages of CBDC development could be found in countries that were affected by economic sanctions by the European Union, United States, and United Nations. From their perspective, CBDCs are an instrument used by sanctioned countries aiming to reinforce their exclusiveness and authoritarian power. Another example of sociological study is an article by Brandl, Hengsbach, and Moreno [2024], which argues that the digitalization of money is exclusive in its nature and aggravates social inequality even in democratic countries. Their analysis of the digital euro shows that the latter «'is better understood' as a reaction to the inability of the private sector to establish a common payment solution for the European market» [Brandl, Hengsbach, Moreno 2024: 17].

The lack of attention to CBDCs from sociologists could be partially explained by the underdevelopment of CBDCs. Despite this fact, economists are continuously making their inquiry. This is one of the reasons why we mostly cite economists in relation to CBDC conceptualizations in what follows. Attitudes of policymakers differ from country to country. In the United States, for example, CBDCs are expectedly treated with skepticism. In May 2024, the United States House of Representatives passed the CBDC Anti-Surveillance State Act prohibiting the Federal Reserve System from issuing and developing their CBDC (it still awaits approval from the Senate). However, the Eurozone shows a general trend towards the development of the digital euro [Nabilou 2020]. Sweden, for example, is considered one of the most advanced countries among developed economies with regards to the e-krona. Other relatively advanced examples of CBDC projects include China with e-CNY/DCEP (Digital Currency Electronic Payment), the Bahamas, and the Caribbean [Cunha, Melo, Sebastião 2021; Tertak, Kovacs 2022].

There is a wide discussion on the definition of CBDCs in the literature [Auer et al. 2022]. A broad definition seems to be more useful since it can cover a variety of currencies regardless of their national specifics. In general, we follow the definition of a CBDC as a *'*a digital liability of a central bank, or other competent authority, representing a jurisdiction's sovereign currency available to the private sector' [Dionysopoulos, Marra, Urquhart 2024]. In other words, it is a digital form of fiat money recognized and controlled by some competent authority (a sovereign state, or the EU) and issued by a central bank [Ozili 2023]. According to the classification of the European Central Bank [2012: 11], money forms could be separated into two main categories: legal status and money format. The legal status of money could be regulated by the state or a legal authority (the European Union, for instance) or unregulated. Bitcoin or Second Life's Linden Dollar (a currency from the computer game) are examples of unregulated money. The money format is associated with its physical conditions (money-stuff, as it is called by Ingham [2006]) and may be physical or digital. For instance, 'traditional' electronic money (e.g., plastic cards) functions in the digital format. Following this classification, the digital ruble is an example of a regulated and digital form of money, as well as the electronic money issued by commercial banks.

One could ask about the difference between CBDCs (particularly the digital ruble) and electronic money. The main feature of the digital ruble is its centralized character because it is issued and controlled by the Bank of Russia. Although the economic advantages of CBDCs are being discussed, there is a relative consensus among scholars that the main motivation of states to issue a CBDC is the growing competition in digital payment markets, especially the development of *'decentralized'* monies, such as cryptocurrencies and stablecoins, which question the power of monetary authorities [Barontini, Holden 2019; Auer et al. 2022; Dionysopoulos, Marra, Urquhart 2024]. The digital ruble will allow the state to take a more leading role in the digital payment market, since all transactions and wallets will be held on the infrastructure of the Bank of Russia. The digital ruble is different from electronic money because it is issued and controlled by the Bank of Russia. This difference has important consequences for all sides of the payment market. Currently, electronic money is the money of private banks because not only do the latter control information on the transaction, but also its issuance in the form of loans and deposits (and other assets and liabilities), thereby multiplying money in the economy [Ferguson 2009; Mehrling 2011]. It is probably not the case that this system will change dramatically (because private banks will still provide liquidity and function as usual) but it can affect its details and result in a risk of private liquidity outflow [Sinelnikova-Muryleva 2021].

Although there is an ongoing discussion on the technological peculiarities of the digital ruble, certain things remain clear. Comparing the digital ruble with cryptocurrencies, the major difference is that the former is a liability of the Bank of Russia. Technologically, it is still a debate whether it will be distributed using distributed ledger technology (DLT), which contains the same technological mechanism as blockchain, or stick to the conventional infrastructure [Kochergin 2021; Dostov et al. 2021; Sethaput, Innet 2021]. However, information regarding all transactions will be located on the Bank of Russia platform, regardless of the technological realization of the digital ruble. The digital ruble will also include a possibility to use smart contracts, or *'colored'* money [Dostov et al. 2021], determining the conditions of transactions and allowing for extra information control [Stepanchenko 2022]. This means that the digital ruble can encrypt which goods are possible to buy and which are not. These features of the digital ruble possess risks of expanding control over businesses and the public, and reinforce the leading role of the state in the payment market.

For a lay customer (including entrepreneurs), however, the difference between the digital ruble and other existing payment forms is not so clear at first glance. One of the major advantages of the digital ruble compared to electronic money is that the former will work offline. This feature may indeed influence those regions of Russia where the Internet connection is not stable or almost absent. For entrepreneurs, the main advantage of the digital ruble may be lower transaction costs and general payment convenience. As of now, the Bank of Russia has announced that client-to-business transactions are going to be free of charge, but it is not clear whether ac-

quiring costs are included in this category. It seems clear that customers will not pay anything for a purchase; however, there is no information on whether entrepreneurs will be charged for these transactions. Overall, the digital ruble possesses some potential advantages such as offline mode and potentially lower acquiring costs but also risks of expanded control and digital surveillance. These features of the digital ruble will depend on the socio-political context and may lead to variety of attitudes towards its potential adoption.

Social Context and Challenges of Digital Ruble Adoption

In the sociology of money, two broad logics of monetary adoption can be distinguished: top-down (hierarchical) and bottom-up (involving two-sided markets) [Polillo 2011; 2022]. The first views the process of monetary adoption as a result of the state's actions introducing a currency via top-down measures. Specifically, it is reflected in the literature on the state theory of money, with significant attention to taxation [Ingham 2004]. The second model is related to monetary proliferation, via a two-sided market where a platform (a bank) is matching customers and merchants [Rysman 2007; Guseva 2008]. This model implies that there are two interrelated groups of users — customers and entrepreneurs — who are linked by a platform. The electronic money we use today in private bank accounts is an example of the two-sided monetary market architecture. In this model, authority does not play the central role; instead, a platform uses a distributive mechanism to locate matches. These two models — top-down (hierarchical) and bottom-up (platform) — are consistent with the conceptual schema of four forms of social organization distinguished by Stark and Pais [2020] (markets, hierarchies, networks, and platforms).

Some authors underline that CBDCs, and the digital ruble in particular, might demonstrate an intention by the state to play a more important role in the national financial market and take this sphere under control [Barontini, Holden 2019]. For example, in Russia, if the state wants to check operations made by users via electronic money, it has to make an inquiry to the private bank. And delivering this kind of information is not necessarily consistent with the private banks' interests. The aspect of transparency opens a new perspective for sociological analysis [Srnicek 2016; Zuboff 2019, Stark, Pais 2020]. The emergence of the digital ruble could be a good example of how the two forms of monetary organization — hierarchical and platform — interact with each other. Is there an inevitable contradiction between platforms and hierarchies, or can a space be found for interaction between these two forms?

Related to these two models of monetary proliferation, there is a broad debate in the sociology of money on which factor is crucial for financial systems to function: authority or trust [Dodd 2005; Ingham 2006; Makarov, Tikhomirov 2021]. According to Geoffrey Ingham, the only way to distribute money within society is authority, specifically related to the state. Initially, money was established in order to collect taxes as a form of debt obligation (this insight is reinforced by anthropological evidence provided by Graeber [2011]). Another position in this debate is related to Nigel Dodd. The crucial factor in monetary relationships, he argues, is trust, and it is not necessary to establish centralized authority for money to function: the only thing needed is people's belief in the system. Platforms, for example, distribute money via the involvement of complementary groups using infrastructure (though, as demonstrated by Guseva [2008], some elements of enforcement could be implemented in parallel to the platform logic and interweave with it, such as the system of wage projects). In turn, other types of complementary currencies do not require centralized authority at all, and can fulfill all monetary functions.

Simmel [2011] described money as a 'claim upon society,' implying that the social basis of trust is the only thing which can explain monetary emergence and proliferation. Dodd [1994], following Simmel's concept of money, distinguished between trust in specific forms of money (or money-stuff as means of exchange), and trust in monetary systems as units of account (or measures of value). Starting from Jevons, scholars of money have defined the functions of money as means of exchange, units of account, and stores of value. Since the

digital ruble will be equivalent to the electronic money of private banks and cash, it will not represent a new unit of account. Therefore, in the Russian economy, it will function as a new means of exchange requiring this type of trust. Thus, it poses a question of its potential advantages over the current payment systems (an adoption mechanism we define as 'choice'), and raises the question of social network effects.

The digital ruble will not be integrated into the Russian economy overnight. Studies of the processes of adoption of monetary forms [Milne 2006; Rysman 2007; Guseva 2008; Boudreau, Jeppesen 2015; Arifovic, Duffy, Jiang 2023] and technology in general [Venkatesh, Thong, Xu 2012; Ren 2019] show that, at the first stage of the process, users assess the convenience and costs of a payment system and make a decision based on their voluntary choice. Later, when a market grows, any additional user brought in by the matching mechanism increases the overall growth of the market. At one point, it reaches the 'critical mass' so even those who were resistant to it before start adopting it because they risk losing clients otherwise. During this process, trust in money and its particular characteristics (such as technology and issuer), and, most importantly, the network of its users, grows. Monetary authorities can stimulate the process of adoption by enforcing users, but this might lower trust and negatively affect the economy.

Entrepreneurs, as a social group, are crucial to the monetary adoption process and its proliferation [Radaev et al. 2012]. The first reason for this is that they are in charge of the supply of money not only in the market but in society as a whole. Simultaneously, they are involved in the two-sided market as one of the two sides. This dual role makes the mechanisms of digital ruble adoption by entrepreneurs a vital issue. For example, in the process of the emergence of electronic money in post-Soviet Russia, entrepreneurs were trapped on two sides: on the one hand, the two-sided market was evolving, albeit very slowly and unpopularly; on the other, monetary authorities forced entrepreneurs to implement wage projects [Guseva 2008]. That could be an illustration of the intersection between the centralized logic of monetary proliferation via the state's authority and the decentralized complementarity mechanism of matching on the two-sided market. If entrepreneurs do not provide an opportunity to pay with the digital ruble, customers will not have enough incentives to use it.

The empirical part presented below combines these insights from the sociology of money in order to understand the mechanisms and patterns of entrepreneurs' adoption of the digital ruble. In short, the distinction between top-down and bottom-up (or authority vs. trust), we argue, can be linked to three main adoption mechanisms: choice, enforcement, and social network effects. The digital ruble adoption is a social process unfolding *over time*. There are indeed different ways to implement the digital ruble in the Russian economy, but finding a balance between the mechanisms can be a better way to increase overall trust among economic actors and provide more financial inclusion. In this light, finding weaknesses in current payment systems and analyzing the potential role the digital ruble can play based on entrepreneurs' experience and needs can help find this balance and optimize the adoption process.

Research Design and Methods

Given the relative novelty of the topic regarding both the digital ruble and empirical sociology of money, choosing interviews as a method and a qualitative research design seems appropriate [Edmondson, McManus 2007]. A broad formulation of the research question in terms of adoption will allow us to analyze aspects such as trust, convenience, costs, and choice, and fit them into a broader framework for digital ruble adoption. Entrepreneurs are crucial for the process of monetary proliferation. Specifically, small firms also have more flexibility in decision-making compared to big companies, which are likely to integrate new payment methods because of government coercion and tighter incentives coming from their clients [Guseva 2008; Radaev et al. 2012]. For small entrepreneurs, however, the costs of acquiring (holding) a POS terminal could be a more determining factor than clients' convenience. By interviewing entrepreneurs, we will be able to understand the patterns of choice, enforcement, and social network effects.

There are some specific features of Russian entrepreneurship. Despite its overall 'evolution,' it is still marked by an unstable institutional environment in the post-Soviet transit [Rogers 2006; Collier 2011]. In particular, the Russian business sphere is dominated by large vertically integrated companies with close relationships to the state [Boutillier 2008]. Small companies, in this sense, face a number of bureaucratic barriers which are especially related to informational instability of taxation [Boutillier 2008]. Researchers underline the low level of institutional trust among small entrepreneurs [Barkhatov, Benz, Pletnev 2020] and their general hesitation and skepticism towards the state and, specifically, financial innovations [Guseva 2008; Markin 2015]. Due to the low level of institutional trust and the weaknesses of formal institutions, informal institutions and social ties are particularly important for Russian entrepreneurs [Puffer, McCarthy 2011]. Regarding the usage of current payment systems, Radaev et al. [2012] found that nearly half of the companies' owners they interviewed assessed acquiring costs as high; this insight is consistent with our findings as well. Entrepreneurs, as rational economic agents, will certainly recognize if adopting the digital ruble will lower their acquiring costs; however, the digital ruble may also increase informational control over payments. Therefore, the digital ruble, with all its positive and negative features, will pose dilemmas for Russian entrepreneurs about whether to adopt it or not.

We have conducted twelve interviews with owners of small Russian companies to gather their expertise on working with current forms of payment as well as identifying possible ways in which the digital ruble can be adopted by both their companies and the Russian economy more broadly. The sample was formed using a mix of convenience and snowball sampling. The main two criteria for choosing experts were: (1) the entrepreneur (an owner of a firm) runs a small company (i. e., below 30 employees) and (2) they use different forms of payment. Not all of them have a POS terminal (a terminal for wireless payment via a card), but all of them provide different payment options to their clients. These options could be cash, banking apps, mobile payments, checking the entrepreneur's account, and so on. By analyzing the specifics of existing payment methods, we can identify their disadvantages and answer the question of how the digital ruble could be used by Russian entrepreneurs and what role it can play in the Russian economy. Before an interview, each expert received a short piece of information on the digital ruble based on the consultation report of the Bank of Russia [2020] and links to additional resources about the digital ruble. Overall, respondents had a fair amount of knowledge on the digital ruble and were able to assess its advantages and drawbacks which can influence their adoption decision.

We used the procedure of coding (despite some critique of it by Biernacki [2012]) because it helps structure data and examine its variation. Following the advice of Small and Calarco [2022], we asked respondents not only about their attitudes towards the digital ruble and digital economy in general but also how it could affect their business activity in order to gain insight into their experience of working with current payment systems. We aim to represent narratives heterogeneously and iterate between empirical findings and the research question. Details of the narrative presented below might change depending on the stage of digital ruble implementation: before entrepreneurs actually use it, they may have a different impression of what it is. All names of respondents are withheld due to confidentiality reasons; other information regarding their enterprises is presented in the Appendix. The interviews were conducted in Russian and lasted from 20 minutes to 2 and a half hours.

Choice, Enforcement, and Social Networks as Digital Ruble Adoption Mechanisms

As one of our respondents said,

> *It* [digital ruble] *should be either extremely useful and convenient, or you* [as an entrepreneur] *have to be forced to use it'* (Interview 5)[1].

[1] For information about the respondents, see the appendix 1.

We call the first option (*extreme usefulness and convenience*) "choice" as a strategy of digital ruble adoption. Since choice implies an active attitude towards the digital ruble, what becomes crucial are the positive and negative elements of the digital ruble as a payment method and a technology in comparison to existing payment systems. Therefore, we provide an analysis of the advantages and disadvantages that digital ruble can potentially offer in contrast to other payment methods available for entrepreneurs.

The second option mentioned by our informant (*'you have to be forced'*) can be classified depending on who does the forcing, and the form of this enforcement. Following the words of another entrepreneur,

> *I would start using it if a situation forced me, whether my partners start using it, or tax authorities or a bank force me to adopt it* (Interview 2).

If the enforcement is coming from the monetary authorities (in this case, tax authorities or a bank), then this adoption mechanism can be called "enforcement." Applied to the micro level of entrepreneurial practices, the aspect of control enlargement becomes important. In discussing it, we focus on which particular areas of the entrepreneurs' activity can be subject to this control enlargement given the digital ruble's specifics, and how entrepreneurs, based on their experience of relationships with monetary authorities, view potential actions those authorities can apply to enforce digital ruble adoption.

There is also a third mechanism, which is related to the option *'you have to be forced'* coming not from monetary authorities directly, but from *'partners.'* If incentives to adopt digital ruble are facilitated by the participants of the market – customers, competitors, and business partners – we name this mechanism "social network effects." The integration of digital ruble into the Russian economy will not happen overnight; it will take time. Therefore, the social network mechanism will likely be enacted at some point when the number of digital ruble users (both clients and other firms) reaches some *'critical mass'* [Arifovic, Duffy, Jiang 2023]. How this point is perceived by entrepreneurs at the micro level is the subject of our empirical analysis regarding the social network mechanism of adoption.

In this section, we describe these three mechanisms – choice, enforcement, and social networks — accordingly. Table 1 summarizes them and provides a broader framework consistent with our empirical evidence. Our task is to present these mechanisms as clearly as we can to gain a better understanding of which role the digital ruble can play in the Russian economy and among Russian entrepreneurs.

Table 1

Mechanisms of Digital Ruble Adoption

Mechanisms of Adoption	Dimensions and Examples
Choice	Economic interest and convenience
Enforcement	Laws from regulators Wage projects
Social network	Incentives from the two-sided market: clients and competitors

Choice: positive and negative features of digital ruble compared to existing payment systems

Returning to the words of our expert, the *'extreme usefulness and convenience'* of digital ruble should be evident in comparison to existing cashless payment systems. There are indeed multiple forms of these systems. Respondents mentioned that they use the following: checking accounts, mobile app payment (via a private bank account), POS-terminals, internet payment systems (such as Yandex.Money), and QR codes in a mobile bank app. These payment forms cover the relationship not only with clients, but also with monetary and fiscal

authorities and other firms. For the entrepreneurs we interviewed, the major drawback of all these payment methods (even when used to deal with government institutions) is that they all are related to private banks.

Attitudes towards banks, of course, vary from one entrepreneur to another. Some of them describe their relationships with banks in a very critical manner:

> *My personal attitude towards banks, to put it mildly, is not very good. I do not consider these structures to be my ally. I consider them, firstly, an appendage of the state, and, secondly, <…> structures that carry out their commercial activities in their own interests, just like other entrepreneurs. They behave with ultimatums, and, of course, support the government <…> Considering the above, I really want the bank to participate minimally in the management of my money* (Interview 4).

Although it is likely that this respondent may want *'the bank to participate minimally in the management of money'* due to his negative relationship with the latter, respondents with more positive attitudes also pay attention to some difficulties in the work with them. In particular, two main problems can be identified: (1) infrastructural inconvenience (related to the bureaucratic paperwork in dealing with payment systems and banks) and (2) high acquiring costs that a bank charges for payments (usually for using a POS-terminal). If the digital ruble is organized in a way that can lower both these drawbacks, it is likely to become more attractive to entrepreneurs and could enact the "choice" strategy of its adoption.

Let us describe both these opportunities in detail, starting with infrastructural inconvenience. Some of our experts shared their experience in working with private banks' payment systems and identified difficulties and inconveniences regarding tax payments and filling out the annual taxation forms. The latter require the participation of private banks whose bureaucratic procedures can be overcomplicated:

> *For example, in order to fill the payment document, you must remember an enormous quantity of different twenty-digit numbers. Who needs it? Twenty accounts of twenty numbers* (Interview 5).

The same respondent highlighted the consequences of an error if funds are sent in a wrong direction due to mistyping these

> *Enormous quantity of different twenty-digit numbers.'* He says, *'Once I sent taxes to the wrong place and then waited a whole year for them to come back, that's how our 'wonderful' system works. The very principle of electronic money is convenient, but the way it works in our country is extremely inconvenient'* (Interview 5).

This example shows that digital ruble can improve these types of paperwork if it connects different types of institutions (such as tax authorities) with a centralized payment system located in the central bank. This can lower the infrastructural difficulties of working with private banks.

Another example of infrastructural inconvenience is the time cost. During one interview, we asked how much time it took an entrepreneur to negotiate with banks on the issue of POS-terminal installation.

> *In fact, approvals take a long time <…> For about a month we couldn't determine it: either they demanded some additional documents from us, more signatures, then they needed notarized copies, then they just needed photocopies, then their employee changed, then their rules changed, then their active instructions for use have changed. That is, it took us about a month to make an agreement, and for about 2 weeks they tried to install this terminal and reporting for us* (Interview 7).

And right after mentioning all these negotiations with a bank, she contrasted this with the strict terms and inflexible requirements imposed on her to maintain the terminal in order to receive payments from a client:

> *From my side, I have to report monthly. And not only do I have to report on every payment that came to me through this terminal, but at the end of the month I have to make a whole list of what came in, and then they check it with what went through their bank <…> And only after that I receive my money, which came to me from the client. A very long process* (Interview 7).

In other words, existing payment systems have disadvantages in terms of bureaucratic organization which result in infrastructural inconvenience and extreme time costs. This is particularly striking given that we are discussing electronic payment systems. What a lot of people deal with as customers is not applicable at all for entrepreneurs. Part of this can be explained by the fact that there are a lot of private banks with their own terms of agreement, and that the relationship between tax authorities and an entrepreneur is still mediated by the former. From this point of view, the digital ruble as a centralized payment system regulated by the Bank of Russia can make a difference in terms of convenience and time-saving.

Another possible opportunity for digital ruble to become an attractive payment system compared to existing ones is lowering acquiring costs. At the moment, if an entrepreneur wants to operate a POS-terminal, then, depending on the bank and specific terms, it will cost them anywhere from 1 to 5% (at least our respondents reported these numbers). Unsurprisingly, these terms are considered high. One respondent shared with us his story of changing the acquiring bank and what he learned from this process, as well as his knowledge of other banks' terms.

> **R:** *We have been working with Sberbank. In general, it was very convenient to use it, the app works better than anyone else, but for this service they charged us 4 percent. It shouldn't cost that much.*
>
> **I:** *Is this just for the terminal to which I tag a card?*
>
> **R:** *Simply for the fact that a person tagged the card. I don't understand why it costs so much <…> Well, why does no one have any questions when paying in cash, but here the bankers believe that they should get 2.5% from this <…> As far as I understand, in Europe these bank services are 0.3%. 0.3%! In our area, they are around 2–2.5%. I once found that several banks offer acquiring for one percent, but in practice, it also turned out to be semi-fraudulent. They do charge 1% (pausing) today, and 1% tomorrow.* (Laughing) (Interview 11).

However, there are different opinions on whether the digital ruble would improve these disadvantages of current payment systems. A pessimistic account points out the probability of additional software being introduced and extra costs, for example:

> *From my point of view, I don't see any necessity to adopt* [digital ruble] *because our company is very small, and it will just bother me and my clients <…> These are extra troubles. It is very likely that it will be necessary to adopt new technological infrastructure and software <…> and it is also likely that it will lead to extra costs* (Interview 2).

There are also optimists who believe in the digital ruble's potential to fill out the missing gaps in entrepreneurs' relations with private banks.

> *Maybe, it* [digital ruble] *will decrease costs on bank services as commission <…> Everything should become easier. All POS-terminals and analogs should be left because the entire financial system has to become more transparent and the necessity to use all terminals should disappear* (Interview 3).

Although the reason why opinions vary is itself an interesting topic to research, it is probably not a task for a qualitative study. What seems important is that, based on our analysis, there are real opportunities for the digital ruble to improve current payment systems. If it succeeds in doing so, it is likely to attract the interest of entrepreneurs by enacting the digital ruble adoption mechanism of voluntary "choice." The latter is consistent with the rationality of entrepreneurs: if they identify a better structural opportunity to decrease costs (both infrastructural and economic), they will use it. However, as we know, the social world does not function solely on pure interest. Alternatively, power relations between monetary authorities and entrepreneurs can enact the enforcement mechanism of digital ruble adoption, which we now turn to.

Enforcement: How Monetary Authorities Can Influence Digital Ruble Adoption

Although this section focuses on the relationship between entrepreneurs and monetary authorities (i.e. the state), we are less concerned with what motivates the latter to adopt the digital ruble. From the expertise of entrepreneurs, what is of interest is how they can be approached by the state and which specific spheres of their activity can be affected in enforcing them to adopt the digital ruble. As we know from Guseva [2008], electronic money of private banks was implemented via wage projects: in this way, a company is legally obliged to pay wages using a specific payment system. Another way this mechanism can operate is through fiscal authority. However, both these ways are well-known and have been implemented for a long time. There are no limits on applying them to the digital ruble as well. What seems new in the case of the digital ruble is the possibilities of gathering information on transactions in a centralized infrastructure of the Bank of Russia. Therefore, we are talking about the issue of digital control. Here, we focus on tangible areas of entrepreneurs' activities where this control can be expanded compared to existing payment systems. The differences in attitudes towards it and their relation to the problems of technological and institutional trust will be discussed later.

Taxation is the first aspect of entrepreneurs' practical activity which is subject to enforcement expansion. Depending on different factors (such as the size of the firm, or the type of service or product they provide), the specifics of their taxation situation can vary. Some small firms, in their work with private banks, have ways to 'negotiate' over taxes. If their income is relatively low, a bank does not consider it as income subject to the taxation zone. This, however, may be affected by the digital ruble's introduction. Consider the situation of one of our informants:

> *There is some concern that the state can control all transactions. I'll explain my situation. My activities are not taxed, that is, I do not pay income tax. And I specifically found out this point from Sberbank employees: I receive payments on a* [one's bank] *card <…> and I asked them a question, "Could a situation happen that they call me from the bank and say: your card is blocked because you have some kind of... then, unknown income, you don't declare it in any way, so we need to block your card until the reasons are clarified?" They* [informally] *answered me: well, for now, you get up to about 100,000 rubles* [roughly $1,100. — *E. M., D. T.*] *per month (and I earn less), this situation is almost impossible <…> But if it happens that the digital ruble comes and I have to use it, then I don't know if the Central Bank will have the same policy as [the entrepreneur's bank], that it doesn't particularly touch people who don't earn very much <…> Here I don't know whether the Central Bank will also do this, or whether it will simply block everyone who receives such permanent payments or not. Therefore <…> from my point of view, I would thoroughly think about switching to a digital ruble* (Interview 1).

Other respondents pointed out that even within the current payment systems, the possibility of controlling financial flows and payments is very large.

> *Everything is controlled very seriously. Now, for example, Sberbank has limited the transfers of an individual in 1 month to no more than 50,000 rubles* [about $550. — *E. M., D. T.*]*, everything that is more is subject to a commission <…> As for legal entities, we are also under control, any amount*

> *over 600,000 rubles* [almost $6,700. — *E. M., D. T.*) *is controlled by the bank. Everything that is transferred in excess of this amount, I have to report for it <...> We are now controlled in any case, both as individuals and as legal entities, there will probably be more* [control]. *Such payments are not introduced just because, they are aimed at control, control, and control* (Interview 10).

In this case, the digital ruble can directly affect small companies and increase control over amounts of payments.

Some experts provided a different account of how this control expansion can affect companies of different sizes. They mentioned the possibility of controlling offshores and money laundering by large companies and multimillionaires:

> *They* [the state] *have long been trying to take us out of the zone of cash payments in order to cover up the entire shadow business because it continues to live, and cash will always exist. There is illegal money laundering and legalization of funds, which every bank and all tax authorities are now fighting <...> This is happening* [digital ruble adoption] *due precisely to the fact that the state wants to return the money that goes to the same offshore companies, control this flow, and understand how much money is being withdrawn. (Apparently, they will count all our billionaires.) Of course, this direct state control over business activities, over the withdrawal of money, over legalization, will be strictly controlled and will be very transparent* (Interview 7).

Even if entrepreneurs report the significant amount of control exercised by existing payment systems, the digital ruble will potentially possess one new feature compared to private banks' money: this control will be centralized. For now, if monetary authorities want to gather information on transactions, they have to communicate with private banks. This process has some legal restrictions, for example, in the enactment of the Federal Law 115 [Federal Law 2001]. The digital ruble will potentially allow the Central Bank to manage and handle data on payments of any type. Even if the digital ruble is still in the process of development, we know that centralization will be its main feature, and the possible transparency of all payments seems an inevitable feature of the upcoming digital reality. This touches on the problem of trust. The digital ruble will be related to technological advancement in gathering data and enforcing the state's authority in the payment market. In this case, if cryptocurrencies are sometimes viewed as digital utopia resulting in financial liberation from government institutions [Dodd 2017b; Çalışkan 2023], CBDCs (including the digital ruble) may mean quite the opposite.

The mechanism of enforcement could indeed be viewed as part and parcel of this digital dystopia. However, even in countries with authoritarian regimes and a strong state-market relationship, the process of new currency implementation takes time. It is likely that, at least for some period of time, entrepreneurs (especially small ones) will face a situation of a multiplicity of monetary forms, where the digital ruble will be one of the many alternatives. This brings about two questions. The first is related to the network effects as a mechanism of digital ruble adoption. Previous studies on monetary proliferation [Rysman 2007; Guseva 2008] show that at one point in time, the network of users can become so large that even peripheral players will experience the necessity to adopt it. The second question is related to trust, and since the digital ruble is a centralized technology, its implications for technological and governmental trust will be crucial. We will now subsequently discuss these two aspects of the digital ruble adoption.

Social Networks in Digital Ruble Adoption: Clients and Competitors

If the aspect of choice was mostly affected by the relationship with private banks, and enforcement was tied to monetary authorities, the social network effects are related to two groups in the payment market: clients and other firms (competitors and partners). Considering digital ruble adoption as a process located within a time-

frame will likely involve network effects. Recent studies show that, from the point of view of the market, network effects start working when the number of users reaches a 'critical mass,' therefore enacting the feedback loop [Ondrus, Gannamaneni, Lyytinen 2015; Arifovic, Duffy, Jiang 2023]. In other words, each additional user amplifies the effect of the multi-sided market with an embedded matching mechanism, thus stimulating other players to adopt a payment mechanism.

How does this mechanism work at the micro level? Our interviews provide strong evidence of the influence of these social network effects. To recall the quote of our respondent in the beginning of the section, who said that it should be either extremely useful or convenient, or you have to be forced to adopt it, the social network mechanism stands somewhere in between. For enacting these effects, an entrepreneur has to assess the situation in a way that clients prefer choosing their competitors because they allow them to pay with a different payment system. In this case, the question of a subjective interpretation of a situation becomes crucial.

For some entrepreneurs, for example, even 'two or three' clients who prefer competitors due to a more convenient payment options sounds critical:

> *Of course, I will use it as soon as I have a small need. Two or three clients might want to do this, and, accordingly, I would also use it <…> I can tell them: I have electronic money only, and they tell me: well, then we won't pay and will turn to another company. Then I'll think about it and say: I also have a POS terminal, a checking account, and the digital ruble. Please, since you are so principled, do not leave <…> That is, I will adapt to anyone* (Interview 2).

When the 'critical mass' of clients using the payment system is reached, then the market as a network stimulates an entrepreneur to adopt it. This type of effect can be regarded as an indirect enforcement because it is neither a direct action from monetary authorities nor a voluntary choice. In this case, an entrepreneur is left with a hard decision, which we call a 'complementarity dilemma,' resulting in profit losses in either case:

— some clients may turn to a competitor who offers a better payment option → profit losses due to losing clients OR;

— adopting an analog of a POS terminal for the digital ruble → profit losses due to the acquiring.

In this case, an entrepreneur faces a kind of a compromise even if they do not trust the financial institution controlling a payment form. The adoption is enacted just by simple fact that a lot of clients are used to this form of payment. One respondent shared his experience in deciding on such a dilemma with regard to one particular private bank (the name of which we disclosed due to potential conflicts of interest). Here is the case:

> [One specific bank] *is not a very good bank at all, because of its large commissions. I don't pay for anything with its card; I only receive money on it, but I pay with other cards that have better conditions for clients. But I keep this bank's card for one simple reason: simply, more people in our country have it. Therefore, when they transfer to my card from any other bank, they are charged a commission. And so that they don't pay it, I keep this bank's card so that they don't pay it. And if there is such a situation that the majority of people in our country will have the app with the digital ruble, then for this reason alone, I will have to get it as well* (Interview 1).

Given the centralized character of the digital ruble, it is likely that it will replace the system where multiple banks compete to attract new customers to charge businesses for acquiring. The mechanism of social network effects will not be specifically different from the adoption of other payment forms, but how an entrepreneur assesses whether the critical mass in the market is reached is an interesting question for further investigation.

One more point that requires mentioning regarding the social network mechanism is the size of the company. We asked our respondents which companies they think are most likely to adopt the digital ruble first. There are two main views. The first, probably more intuitive, is that the digital ruble adoption should start with big companies and then move to smaller ones.

> *This should all start with large companies. There will be no way out for smaller ones. It must start with large ones. Otherwise, it takes a long time* (Interview 12).

In this case, the critical mass of users will be brought on the wave of big companies' trends: once large firms adopt mechanisms that can be convenient for lay customers, the smaller ones will have 'no way out.'

The second possible way of thinking about this process, which is quite counterintuitive, is a bottom-up approach. The logic is that if the digital ruble is convenient enough and lowers costs, smaller companies may adopt it more easily, because bigger ones have more bureaucratic obstacles.

> *If it is not costly, then of course a small business will connect faster, because large ones have more approvals: while this information reaches the top, while one department does this, another will correct that, and a third will change how it looks… In large companies, approvals will take much longer than in small ones. Therefore, if I understand that I need it, that it's important and interesting, and it's also practically free, of course I'll be the first to run to implement all this into my life* (Interview 9).

Of course, the factor of acquiring costs is of great importance here.

To sum up, although the digital ruble represents a centralized form of money that can be integrated into business practices directly, enforcement may not be the best way to generate trust in it. We have identified that, regarding small businesses, the digital ruble can improve such aspects as time management and acquiring costs and eliminate the general infrastructural inconvenience of the current payment systems. This scenario may enhance the interest of entrepreneurs and stimulate their adoption from the bottom-up. Since the digital ruble adoption is a process that will take time, these factors can be crucial in establishing trust in monetary authorities and optimizing business processes. However, we can argue that there is a general impression of the digital ruble as something unnecessary, complicated, and control-expanding.

Although the current study allowed us to distinguish between three major adoption mechanisms, many questions still remain unanswered, and only the history of the digital ruble's development and introduction will show the answers. For example, even while choice, enforcement, and social networks are clearly major ways to introduce the digital ruble, the question of their coexistence versus the prevalence of one over the others seems important. Would one of these forms be predominant over others? What strategy would the monetary authorities consider their major: stimulating the interests of entrepreneurs and customers to adopt the digital ruble, or enacting the enforcement mechanism, prioritizing the speed of its proliferation rather than building trust? Understanding which mechanism is superior might show the contours of the 'digital society,' which is not limited to the Russian context and entrepreneurship but is a timely question worldwide. Speaking about the latter, the question of how the political regime and culture affect attitudes towards a CBDC and the preference for the mechanism of its adoption could be the subject for further study as well. These and other questions open a broader discussion on the role of CBDCs in the future economy and society regarding such crucial aspects as trust in money and monetary imagination.

Discussion and Conclusion: Digital Ruble — Money for Surveillance (State-Oriented) Capitalism?

In concluding remarks, we want to provide a broader reflection on digital money (CBDCs, digital ruble, and even crypto) and its role as a new technology, but *still a form of money*, in the digital economy. The discussion on whether technology will save society or enslave it has existed since the birth of sociology. In the Marxist account, it is especially important since technological advancements are related to the means of production, whose development will eventually lead to the establishment of communism. In the Grundrisse [Marx 2005], Marx recognizes the dangerous side of technological development: technology will either save us by means of 'general intelligence,' or enslave us with totalitarian control by politicians. Modern transformations of capitalism prove the idea that technology is related to the social context of its usage and can be dangerous as well as liberating. In contrast to Marx's times, modern surveillance capitalism is oriented towards gathering data and using it as a source of making profits via big platforms [Zuboff 2019; Mayer 2020; Stark, Pais 2020; Schor, Vallas 2021]. Monetary developments are following the 'basis' of the new digital economy. Following this logic, cryptocurrencies might represent a liberating monetary technology, while CDBCs, especially the digital ruble and the digital yuan, can be viewed as control-enlarging means of surveillance in state-oriented capitalism.

The processes of adoption and the mechanisms that we analyzed in this paper are indeed important: the digital ruble can be cheaper and more convenient for entrepreneurs, as well as provide more financial inclusion due to its offline payment opportunity, and it can also positively affect the macroeconomic situation and, if adopted appropriately, increase trust within the economy. On the other hand, it can enlarge governmental control through mechanisms of enforcement, or be brought about by reaching the critical mass of its users. However, when put in a broader context, all these points are very specific in relation to the global transformation of capitalism and geopolitical changes. As Zuboff [2019] and her followers point out [Aho, Duffield 2020], digital technologies allow for unprecedented control over human behavior using data for profit maximization. In surveillance capitalism, human actions can be programmed according to what Çalışkan and Callon call economization processes [Çalışkan, Callon 2009]. Analogous with financial models [MacKenzie, Millo 2003], 'old' and 'new' market devices such as credit ratings and platform rankings can make human behavior performative according to the demands of platforms and markets (and the owners of big companies).

In this sense, it is indeed necessary to speak about digital money as opposed to electronic money. The latter was just an analogue for cash that private banks use to control in forms of loans, deposits, and other forms of money, leveraging them in REPO or Eurodollar markets against an asset as collateral [Mehrling 2011]. In this logic, impersonal trust in money is held up by this collateral in money markets [Polillo 2022], which at the level of the national economy extends to the state's budget and its debt obligations [Ingham 2004]. Electronic money is just an electronic form of deposits and loans, which correspond to cash in the same way as paychecks.

In contrast, digital money might be something fundamentally different and, in turn, require more sociological reflection. The whole idea of digital money (both CDBCs and crypto) is that *data* is a source for creating impersonal trust. We agree with Dodd [2017a; 2017b] in his statement that Bitcoin is still used by communities, making the libertarian idea of fully dissocialized money very short-lived, and that crypto still needs impersonal trust to function as money. However, we are not sure that the logic of its creation can be comparable to 'traditional' monetary forms. In this sense, cryptocurrencies are indeed data money, as Çalışkan [2023] calls them, because the source of trust is data.

CBDCs should be viewed as cryptocurrency in this way: they *are* data money. The data can be viewed as the new gold for international payment and a source of trustworthiness, especially when considering the possible

decline of the U.S. dollar as a global payment system [Credit Suisse Research Institute 2023]. However, if the code created by Bitcoin miners is publicly available and, in this sense, can liberate society by means of 'general intelligence' (it literally becomes common knowledge), CBDCs (at least in the Chinese and Russian contexts) represent a model where the code is restricted to public use. Even if the digital ruble does not use blockchain and operates conventionally, it will still allow for unprecedented informational control and data aggregation. Combined with programmed economized behavior, this represents complete transparency of (digital) economic actions, activity, and transactions.

In our opinion, this picture poses new challenges to the sociology of money and economic sociology. A reader can think of other far-reaching consequences of this development on their own, but we want to conclude by drawing attention to one specific question that will demand ongoing sociological debate. If we agree that trust is vital for monetary functioning, what can happen to its role in complete financial transparency? We assert that one needs trust when the situation is uncertain, but the digital economy and digital money might almost completely eliminate this uncertainty. The vital question in this sense is *who* controls this data. In this light, stablecoins, which are backed by the value of a particular corporation (Facebook with its Diem is a prominent example), can also restrict access to their code. Adoption mechanisms that we discussed in this work are relevant for a specific historical moment and the structural conditions of monetary creation and proliferation. However, in a broader sense, we see the potential of CBDCs and the digital ruble to dramatically change the monetary imagination and trust in money such that they will no longer be based on familiar collateral or government budget, but on a digital code. We urge scholars to engage in discussion about the role of digital money in the digital economy not only within the national context but also in relation to the global changes in capitalism, economy, and society.

Appendix 1

Socio-Demographic Characteristics of Experts

Number of Interview	Sex	Age	City (Region)	Area of Business
Interview 1	Male	20	Moscow	Private tutor
Interview 2	Female	48	Moscow	Corporate law consulting
Interview 3	Female	42	Krasnodar	Accounting firm
Interview 4	Male	55	Moscow	Manufacturing
Interview 5	Male	61	Moscow	Manufacturing
Interview 6	Male	52	Nizhniy Novgorod	Music store
Interview 7	Female	43	Moscow region	Corporate law consulting
Interview 8	Female	38	Moscow	Tailor shop
Interview 9	Male	40	Moscow	Dental clinic
Interview 10	Male	51	Moscow region	Repair services
Interview 11	Female	35	Saint-Petersburg	Accounting firm
Interview 12	Male	59	Moscow region	Groceries

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