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MODERN UNDERSTANDING OF MONEY AS AN ECONOMIC TOOL: THEORIES, FEATURES OF REGULATION, THE IMPACT OF SCIENTIFIC AND TECHNOLOGICAL PROGRESS

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Abstract

This article examines the role, meaning, and functions of money in the modern economy. The role of money as an economic category and an economic instrument influencing the economic development of the entire financial system and economic security and the search for ways to ensure sustainable innovative development are increasing under the influence of globalization processes and scientific and technological progress. The purpose of the research is to study money as an economic category that affects economic development through the tools of theory. The paper analyzes the norms of current legislation, statistical data, and the opinions of scholars on this issue. The article presents a comparative analysis of the regulation of various types of modern money, based on which it is concluded that there is no uniform approach to regulation, which slows down the involvement of advanced financial technologies in the world and domestic economic turnover. Proposals for improving the legal regulation of cryptocurrencies and electronic money have been presented.

Keywords

Scientific and technological progress – Money turnover – Money issue – Money functions

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Introduction

Money performs the distribution and redistribution function of economic resources in society daily.

At present, new functions of money are being allocated in the economic environment. The information function is expressed by the ability of money to show the state of the reproduction process and possible economic imbalances of development¹. The option to create a share premium. At present, the share premium is the profit of the issuing institution from the monopoly right to issue banknotes, calculated as the difference between the face value of the money issued and the cost of the costs of their issue. When the state regulates the value, quantity, and proportions of money circulation and other monetary indicators, the authorities influence the course of the economic life of the country, thereby applying the regulatory function of money. According to the American economist M. Rothbard, when the state controls the monetary system, it has the key in its hands to control the entire economy². The communication function is a link between people, a universal means of linking commodity producers, a link connecting various elements of society, and individual states. Money makes it possible to develop numerous connections in society, due to their increasing need in connection with the development of the economy. Money can be used as an instrument of economic pressure in an economic confrontation, used to weaken the economy of other states, due to the destabilization of the monetary system, as well as for economic and political subordination without the need for invasion. At present, the use of financial institutions (USA, UK, Switzerland, etc.) to finance revolutions and civil wars is widespread, being drawn into debt dependence, blocking accounts abroad, discrediting the national currency³. Acting as a functional component of the economic culture of society as a whole, money and its role in the modern world are changing due to changes in the conditions of economic development. The amount of money supply increases every year. In 2019, compared to 2014, it increased by 55.6%. This growth is mainly due to an increase in the volume of non-cash funds, which increased by 62%⁴. In recent years, many studies have reported relatively high rates of cash growth, significantly exceeding the growth of nominal GDP. Non-cash payment instruments such as debit and credit cards, interbank transfers, etc. have also grown significantly. There is a process of replacing cash with safer and faster payment methods, although in relative terms, cash is still the predominant means of payment for transactions in most countries⁵.

¹ N. V. Maga, Dengi. Ponyatie, sushchnost i funktsii. V sbornike: Molodezh i nauka: shag k uspekhu. Sbornik nauchnykh statei 3-i Vserossiiskoi nauchnoi konferentsii perspektivnykh razrabotok molodykh uchenykh: v 5 tomakh (Yugo-Zapadnyi gosudarstvennyi universitet, Moskovskii politekhnicheskii universitet, 2019).

² M. Rothbard, *The Mystery of Banking* (Auburn: Ludwig von Mises Institute, 2008).

³ L. I. Vanchukhina; N. N. Galeeva; A. M. Rogacheva; Y. R. Rudneva y T. P. Shamonina, "Regional identification and self-identification of the residents of the Yenisei Siberia region: the linguocultural aspect", *Revista Inclusiones* Vol: 7 num Especial (2020): 375-391 y A. E. Suglobov; O. A. Repushevskaya; A. V. Tkach; L. P. Dashkov y E. I. Balalova, "E-Commerce development prospects in the entrepreneurship of the Russian Federation", *Revista Inclusiones* Vol: 7 num Especial (2020): 342-349.

⁴ O. M. Markova, "Analiz izmeneniya ekonomicheskoi prirody nalichnykh deneg v usloviyakh tsifrovoy ekonomiki: teoreticheskii podkhod i praktika primeneniya", *Vestnik Astrakhanskogo gosudarstvennogo tekhnicheskogo universiteta. Seriya: Ekonomika* Vol: 2 (2019): 31-40.

⁵ G. Rebelo, "Fiscal policy in an Endogenous Growth Model", *Quarterly Journal of Economics* Vol: 107 (1991): 124–1259.

Significant changes in monetary forms, monetary circulation, and the role and functions of money occurring in modern global and national economies could not but arouse great interest from researchers. Various points of view on the role, functions, and types of modern money are presented in the works of Z.F. Barlakova⁶, G.A. Farzalieva⁷, N.V. Maga, and many others. However, given the fact that ideas about money in modern conditions are changing rather quickly, the relevance of new studies showing the relationship between changes in the economy and serving the needs of the economic turnover of financial resources seems undeniable. Research hypothesis. The process of evolution of forms, types, and functions of money depends on the needs of the economy and is aimed at ensuring the convenience of economic turnover.

Methods.

The dialectical method of cognition of reality was used as the main one in the study, which made it possible to study phenomena and processes in the dynamics of their development. The use of the methods of analysis and synthesis to consider the components of the conditions for the emergence of various types of money made it possible to fully understand their role in modern society and assess their transformation. The tools of formal logic allowed tracing the causal relationships that were formed in a certain way at a certain stage of society's development in the mass consciousness and created a certain attitude not only to the process of trade and exchange but also to the reality of that time. The study used a statistical method that allowed showing the ever-increasing value of money in the economy, changes in the ratio of the use of various types for its needs. The comparative legal method allowed identifying trends in the development of certain elements of legal regulation of certain types of money in various legal systems. The theoretical basis of the research was the works of the founders of various theories of money. Regulatory legal acts, statistical materials available on the Internet, and opinions of researchers in published works were used to prove the hypothesis of the research.

Results

Assuming some generalization, all the theories of the functioning of money that apply to modern times can be divided into three main types of money. The first concept was rationalistic (G. Knapp)⁸. It explained the origin of money by the rational choice of people who realized that a universal tool is needed to improve the quality of exchange of goods. However, people accepted a voluntary multilateral agreement among themselves, which confirmed that money would be a special tool for improving the exchange conditions. The second concept was called evolutionary-historical (K. Marx)⁹. According to it, money appeared as a result of a long historical process, during which economic cooperation between people developed. According to this concept, money appeared as a result of the development and improvement of the exchange process. The third concept of the origin and essence of money was the functional theory of money (G. Simmel)¹⁰.

⁶ Z. F. Barlakova, *Elektronnye dengi v Rossii: sovremennoe sostoyanie i perspektivy razvitiya*. V sbornike: *Molodye uchenye Rossii* (Sbornik statei Vserossiiskoi nauchno-prakticheskoi konferentsii. 2020).

⁷ G. A. Farzalieva, "Elektronnye dengi cherez prizmu denezhnykh funktsii", *Voprosy ustoichivogo razvitiya obshchestva* Vol: 3 num 2 (2020): 496-502.

⁸ G. F. Knapp, *Staatliche Theorie des Geldes* (Lindau: UNIKUM Verlag, 1923).

⁹ K. Marx y F. Engels, *Polnoe sobranie sochinenii* (Moscow: Gospolitizdat, 1960).

¹⁰ G. Simmel, *Izbrannoe* (Moscow: Lawyer, 1996)

It considered the purchasing power of money as the result of its circulation or functioning. Currently, this concept is officially accepted in the modern scientific world as the paradigm of the origin of money. This point of view seems to best emphasize the functionalism of money, explains the mechanism of its appearance, and use from the point of view of functional demand.

Money, as an economic product, has come a long way in its development. Reflecting on the value of goods, money throughout the history of its development took the forms that were necessary to meet a certain level of commodity relations. New forms of money arise when existing forms of money no longer meet the requirements of time and slow down the process of production and exchange¹¹.

Throughout the history of the development of money, each new form of money appeared based on an existing one and, gradually developing, replaced it. Money was used to meet various social needs in all social and economic systems, excluding primitive ones. Researchers associate the origin of money with the period of the 7th-8th millennium BC, when primitive tribes had surplus products¹². This encouraged them to engage in the process of exchanging products and goods. Any of the products or goods could be given the status of money. This requires only one condition – this subject must be recognized by all participants in economic relations as a universal medium of exchange. Each historical period is characterized by its own "individual" form of money. The evolution of commodity production and the increase in the intensity of exchange led to the allocation of the total commodity mass of natural (real) money as a universal equivalent. Natural (real) money includes all types of goods that were universal equivalents at the initial stages of commodity turnover (cattle, grain, furs, etc.), as well as money made of precious metals (gold and silver bars and coins). Their characteristic feature is that they could exist not only as money but also as a commodity. The nominal value of this type of money corresponded to their real value (the value of gold, silver, etc.)¹³. Silver and gold money, having its value, were not subject to depreciation. However, it is possible to note the homogeneity of the monetary material from the features of this money, its divisibility, safety from damage in comparison with other analogs (cattle, fur, grain). In addition, the limited production of gold and silver was an obstacle to uncontrolled money issuance and, consequently, inflation. Gold circulation existed in the world before the first world war when warring nations began to issue symbolic money in the form of various signs of value and replacement of natural (real) money to cover their expenses.

Paper money and various metal signs of value are representatives of real money. Historically, they appeared as substitutes for gold coins in circulation. The objective possibility of circulation of paper and other symbolic money is due to the fact that money as a universal equivalent is a fleeting intermediary in the exchange of goods. In this regard, paper money and various coins (made of copper, aluminum, and other metals) appear when the direct presence of the precious metals themselves becomes optional in frequently repeated operations.

¹¹ O. M. Markova, Analiz izmeneniya ekonomicheskoi prirody... 35.

¹² N. R. Balynskaya y P. Yu. Stepashkov, "K voprosu o proiskhozhdenii deneg", Aktualnye problemy sovremennoi nauki, tekhniki i obrazovaniya Vol: 10 num 2 2019: (59-61).

¹³ D. M. Vasina, Dengi v sovremennoi ekonomike i perspektivy ikh razvitiya. V sbornike: Aktualnye problemy razvitiya khozyaistvuyushchikh subektov, territorii i sistem regionalnogo i munitsipalnogo upravleniya. Materialy 15 mezhdunarodnoi nauchno-prakticheskoi konferentsii (Kursk, 2020), 99-102

The development of information technologies and communications and the introduction of computers have led to the emergence of new means of payment, which are currently causing heated discussions. In the process of economic development, not only the modernization of the existing functions of money takes place, but also the emergence of new ones. Currently, the concepts of "digital money", "virtual money", "electronic money", and "cryptocurrencies"¹⁴ are widely used¹⁵. The state is seen as interested in the distribution of payment means that are not associated with a material carrier since the production of cash is based on huge costs, which in essence remain on the shoulders of taxpayers.

Discussion

It is necessary to investigate the relationship between the above-mentioned terms within the framework of the chosen approach to determining the role of modern money in the economy. Digital currency is the most general concept, which refers to a special form of currency that exists only in the digital (electronic) form¹⁶. Digital currency is immaterial; transactions with it and storage are only possible if there are e-wallets connected to the Internet or other designated network. Digital currencies can be used to pay for goods and services, most often on certain Internet portals, social networks, or gaming sites. According to the method of regulation, digital currencies are usually divided into regulated digital currencies of central (national) banks and virtual currency. A regulated digital currency is a digital currency regulated by the Central (national) Bank of the relevant state¹⁷. A regulated digital currency currently exists only as an idea, as several countries, including the UK, Sweden, and Uruguay, are planning and discussing launching digital versions of their fiat money¹⁸.

The concept of "virtual currency" should include electronic money, widely issued in many countries of the world, as well as cryptocurrencies¹⁹.

Electronic money is funds registered on accounts in the Bank's computer memory. They are controlled by special electronic devices. This system, according to many economists, is a transition to a qualitatively new stage in the evolution of monetary circulation. In particular, the introduction of computers in the banking sector makes it easier to replace checks with plastic cards²⁰. Their use eliminates the need for cash and opens the possibility for their owners to make short-term loans to banks.

¹⁴ N. Artemov; L. Arzumanova; A. Sitnik; Y. Smirnikova y S. Zenin, "El modelo de regulación legal de la circulación de monedas virtuales: La investigación sociológica y legal", *Jurídicas CUC* Vol: 16 num 1 (2020): 127–144.

¹⁵ N. Apergis; N. Kunitsyna y E. Dyudikova, "The Role of Electronic Money in the Payment System: Evidence from Middle-Income Economies", *International Journal of Emerging Trends in Engineering Research*, Vol: 8 num 1 (2020): 67-78.

¹⁶ A. V. Kochetkov, *Rol finansovykh aktivov v mirovoi denezhnoi sisteme*.bV sbornike: Gosudarstvo i biznes. Ekosistema tsifrovoi ekonomiki. Materialy 11 Mezhdunarodnoi nauchno-prakticheskoi konferentsii (Severo-Zapadnyi institut upravleniya RANKhiGS pri Prezidente RF, 2019), 294-300.

¹⁷ M. Bech y R. L. Garratt. Central bank cryptocurrencies. Retrieved from: https://www.bis.org/publ/qtrpdf/r_qt1709f.htm

¹⁸ M. A. Egorova y L. G. Efimova, "Ponyatie i osobennosti pravovogo regulirovaniya kriptovalyut", *Predprinimatelskoe pravo* Vol: 3 (2019): 11-16.

¹⁹ V. O. Chulkov, "Research modelling in civil engineering master's", *Revista Inclusiones* Vol: 7 num Especial (2020): 407-416.

²⁰ Z. F. Barlakova, *Elektronnye dengi v Rossii...*

At the present stage of scientific knowledge, the concept of "electronic money" is rapidly gaining popularity. This new form of money meets the requirements of the time and speeds up the process of production and exchange. However, there is no uniform understanding of this economic definition. Electronic money is a non-cash payment tool that has been developed as a result of scientific and technical development of methods for storing and transmitting information about money transactions. The opinions of scholars are divided about the prospects for the development of this tool, its implementation, and its quality.

"Electronic money is money that exists in banking computer systems and is available for transactions through electronic systems. Its value is supported by a fiat currency, and it can be translated into physical form, but its use is often more convenient in electronic form"²¹. Today, WebMoney, Yandex.Money, QIWI, and EasyPay are the most well-known companies in the e-money market. It should be noted that electronic money occupies only a small part of online payments in the Russian Federation. Russian citizens use the e-money system infrequently, only when necessary and for small amounts²². However, it should be noted that electronic money is a promising method of non-cash payment. Most countries have legislation on the issue and circulation of electronic money. This primarily concerns the Directive of the European Parliament and of the Council of September 16, 2009, 2009/110 / EU on the admission to the activities of electronic money organizations and its implementation, as well as on prudential supervision of these organizations, on amending Directives 2005/60 / EC and 2006/48 / EC and repealing Directive 2000/46 / EC²³. Directive 2009/110 / EC specifies the following characteristics of electronic money: — monetary values that are recorded in electronic form; — represent a right of claim against the issuer that arose against the provision of funds through payment transactions; — can be accepted as money by any individual or legal entity other than the issuer. According to clause 18, article 1 of the Federal Law of June 27, 2011, No. 161-FL "On the national payment system" electronic money – "funds that are previously provided by one person (the person who provided funds) to another person, taking into account information on the number of funds provided without opening a bank account (obliged person)" [Federal Law "On the National Payment System" dated June 27, 2011, No. 161-FL²⁴.

Electronic money has its advantages and disadvantages. The advantages include ease of use; one can pay while at home. The concept of "electronic money" is sometimes mistakenly understood as bank cards, cards of commercial enterprises (single-purpose cards of gas stations, telephone companies, etc.). This is due to the fact that there is no specific wording of the term "electronic money" that reveals its economic and legal essence. It seems that it is necessary to clearly define the concept of electronic money, the list of transactions, and the composition of possible participants in the legislation. Electronic money is the latest payment tool. As part of a new electronic payment system (a possible future replacement for traditional payment), electronic money is attracting professional interest in its impact on the further development of banking functions in the

²¹ S. V. Afonina, *Elektronnyye dengi* (St. Petersburg: Piter, 2001), 128.

²² G. A. Farzaliyeva. *Elektronnyye dengi cherez prizmu denezhnykh funktsii...*

²³ Directive on the establishment, operation and prudential supervision of the activities of organizations dealing with electronic money, supplementing Directives 2005/60 / EC, 2006/48 / EC and repealing Directive 2000/46 / EC " International experience Vol: 25 (2011): 4

²⁴ Federal Law "On the National Payment System" No. 161-FL. (as amended, entered into force on March 24, 2020). June 27, 2011. Retrieved from: <https://rg.ru/2011/06/30/fz-dok.html>

global and networked economy²⁵. Electronic money can potentially replace the currency in circulation, which is part of the monetary aggregates from the balance sheet of central banks. Now, this impact is insignificant – central banks record a very low decline in the currency in circulation as a result of the growth of electronic money. Technological progress contributes to the development of a new direction in the payment system – electronic payment systems. This new system applies to all transactions that are performed electronically. The development of the electronic payment system is linked to the development of information technologies and the development of the global economy. The reality is that the traditional banking system is changing, and countries are finding it difficult to adopt new banking practices, such as the electronic banking system. On the other hand, the presence of electronic money generates a lot of controversy about its impact on monetary policy through its ability to replace the currency in circulation. So far, its influence has been negligible. Electronic money is the newest tool in the payment system, and according to one broader definition, it is money that is transferred electronically²⁶. Electronic money is not printed money or a deposit. Payments are limited only to the amount stored on the electronic device. One of the main differences from other payment instruments is that the issuer and recipient of electronic money are different and they are the same in the case of other payment instruments (for example, banks can issue credit cards and simultaneously accept payments using such cards). The issuer of electronic money can be a bank (if it has a special permit to carry out this activity) or a special electronic bank²⁷.

According to analysts and researchers²⁸, electronic means of payment will completely replace cash and cheques from the market in the near future since they are a more convenient way to pay for goods and services. Online bill payments will reach significant volumes, as most users are starting to use or expand the use of this payment option. At the same time, the use of "paper" payments will be significantly reduced. However, experts warn that banks will face competition from financial service providers in this area, given that a provider that provides users with a convenient and simple interface will be able to hold them for a long time.

Cryptocurrency is a revolutionary phenomenon of the digital economy, which simultaneously arouses considerable interest in the private sector and serious concern on the part of public structures²⁹. Cryptocurrencies open up completely new opportunities for business activities and investments, but they are also an ideal tool for carrying out illegal operations, including the legalization of funds obtained by criminal means and the financing of terrorism. The key characteristics of the cryptocurrency are decentralization, anonymity, and cross-border nature. These qualities of this innovative phenomenon, along with numerous opportunities, carry certain legal problems and risks for legal entities and individuals who use bitcoins, as well as for the security of the state as a whole.

²⁵ S. S. Kvashnin, "Elektronnye dengi kak novoe napravlenie razvitiya denezhnogo obrashcheniya Rossii", *Vestnik Nizhnegorodskogo universiteta im. N.I. Lobachevskogo* Vol: 1 (2004): 111-114.

²⁶ L. A. Kargina, "Perspektivy razvitiya elektronnykh platezhnykh system", *Transportnoe delo Rossii* Vol: 11 (2009): 12-13.

²⁷ G. A. Farzaliyeva, *Elektronnye dengi cherez prizmu denezhnykh funktsii...*

²⁸ M. N. Dudin; V. N. Zasko; E. E. Frolova; N. G. Pavlova y E. P. Rusakova, "Mitigation of Cyber Risks in the Field of Electronic Payments: Organizational and Legal Measures", *Journal of Advanced Research in Law and Economics* Vol: 9 num 1 (2018): 78-88 y E. A. Kirillova; V. V. Bogdan; E. V. Pozdnyakova; S. S. Zenin y E. S. Ustinovich, "Inheritance of Electronic Payment Accounts: Practice Issues", *J Internet Bank Commer* num 1:002 (2015).

²⁹ A. V. Kochetkov, *Rol finansovykh aktivov v mirovoi denezhnoi sisteme...*

The idea of creating a decentralized payment system in which transfers can be made completely anonymously was voiced by Milton Friedman in 1999³⁰. This idea has been developing over time and was embodied in 2009 in its most elaborated form when an unknown person (a group of persons) under the pseudonym "Satoshi Nakamoto" introduced the world to such a cryptocurrency as bitcoin³¹. Bitcoin was released using Blockchain technology. Therefore, it is said that Bitcoin is the first Protocol in the Blockchain, or Blockchain, version 1.0. Thousands of new cryptocurrencies appeared quickly enough, the participants of the protocols of which tried to improve the idea of Satoshi Nakamoto. This is how various altcoins were created: Namecoin, Litecoin, Peercoin, MonaCoin, Sardano³², etc.

At present, there are two diametrically opposed views on the question of the relationship of these concepts in the legal literature. According to the first one, cryptocurrency and electronic money are considered as general and private categories or equivalent. Often, among the list of electronic money, one can find bitcoin and other types of cryptocurrency, as well as vice versa – among examples of cryptocurrencies, web money, or another type of electronic money may suddenly appear on the list³³. The second point of view, shared by the authors, comes from the fact that cryptocurrency and electronic money are completely different tools that do not have significant common features and are different in essence³⁴.

When discussing the relationship between electronic money and cryptocurrencies, first of all, it is to be expected that real cryptocurrencies can only be issued in a decentralized manner using blockchain technology. If the issue has a centralized issuer while retaining other features inherent in real cryptocurrencies, then this refers not to cryptocurrencies, but the issue of electronic money. As shown above, electronic money is also a type of virtual money, like cryptocurrencies, but it has other characteristics³⁵. In addition to the method of emission and storage, there are other differences, for example, the mandatory use of asymmetric cryptographic encryption when creating cryptocurrencies, etc. The current spread of cryptocurrencies around the world and the constant involvement of new people in them allow making confident predictions about the successful future of the digital money system, including cryptocurrencies, that are not yet recognized by all.

³⁰ M. A. Egorova y L. G. Efimova, Ponyatie i osobennosti pravovogo regulirovaniya...

³¹ S. Nakamoto, Bitcoin: A Peer-to-Peer Electronic Cash System. Retrieved from: <https://bitcoin.org/bitcoin.pdf> y E. A. Kirillova, "Bitcoin, Lifecoin, Namecoin: the legal nature of virtual currency", Journal of Advanced Research in Law and Economics Vol: 9 num 1(31) (2018): 119 – 126.

³² Global Legal Research Directorate Staff. Regulation of Cryptocurrency Around the World. The Law Library of Congress. Retrieved from: <https://www.loc.gov/law/help/cryptocurrency/world-survey.php>

³³ I. A. Golovchanskii; D. D. Ivanov y T. V. Pluzhnikova, Vozmozhnosti i problemy primeneniya tekhnologii blokchein v tsifrovizatsii ekonomiki v sozdanii elektronnoy gosudarstva "Tsifrovoe pravitelstvo": neobkhodimye preobrazovaniya i riski. Sbornik statei uchastnikov Mezhdunarodnogo foruma Finansovogo universiteta. Pod redaktsiei I.V. Lipatovoi, I.V. Bitkinoi (Moscow: Obshchestvo s ogranichennoy otvetstvennostyu "Izdatelstvo "KnoRus", 2018).

³⁴ E. N. Abramova, "K voprosu o sootnoshenii elektronnykh deneg i kriptovalyut", Konkurentnoe pravo Vol: 3 (2019): 18-22.

³⁵ A. V. Kochetkov, Rol finansovykh aktivov v mirovoi denezhnoi sisteme...

Conclusion

Thus, the paper shows the main functions and the huge role of money in the modern economy. Responding to the needs of the economy, money, as the economic development of society, acquires the necessary functions for this development and passes into acceptable forms for its time, which seems quite understandable from the standpoint of the functional concept of money. States, to be economically advanced, should recognize new forms of money and consider regulating them in a way that promotes economic development rather than hinders it. This statement seems quite fair, including for cryptocurrencies, the use of which in the Russian Federation is not yet regulated. Thus, the hypothesis of the study appears to be proven. It is also appropriate to continue the topic started in this study in the direction of studying the problems of functioning of cryptocurrencies in the national payment system.

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