

MONEY CIRCULATION STATISTICS

СТАТИСТИКА ГРОШОВОГО ОБІГУ

The statistics reveal the peculiarities of effective analysis of penny trading processes, the influx of the COVID-19 pandemic and the large-scale invasion of Ukraine for the analysis of penny mass, the dynamics of penny trading indicators for "forms of pennies". Penny trading is the process of moving pennies that takes place between the economic system during various operations, such as production, exchange, distribution, as well as the sharing of goods and services. This process can be carried out both as unprepared processes and as pre-cooked operations. The main purpose of the statistics is to provide the state penny credit regulation authorities with reliable information about the penny system for the development and implementation of a consistent penny credit policy, an important warehouse of the state's approaches to the regulation of the market economy. This system will take place in a variety of ways, aimed at stabilizing the penny turnover, the currency system and the improvement of the credit sector. By changing pennies and credit resources, the country can infuse into the economy, adjusting the mechanism of this influx depending on the economic situation. The nutrition of economical daily life and the influx of penny weight on the level of inflation are also considered.

Key words: COVID-19, statistics, penny trading, inflation, penny-credit regulation, payment transactions.

У статті розкрито особливості ефективного керування процесами грошового обігу, вплив пандемії COVID-19 і повномасштабного вторгнення в Україну на аналіз грошової маси, динаміка показників грошового обігу за «формами грошей». Грошовий обіг – це процес переміщення грошей, який відбувається у межах економічної системи під час їхньої участі у різних операціях, таких як виробництво, обмін, розподіл, а також споживання товарів і послуг. Цей процес може містити як безготівкові розрахунки, так і готівкові операції. Кількісний аспект грошового обігу виражається у показниках грошової маси й швидкості обігу грошей. Доведено, що для успішного проведення грошової політики у сучасній ринковій економіці необхідно мати достатньо статистичних даних щодо обсягів, структури і динаміки функціонування грошової системи і грошового обігу. Це дозволяє оперативно реагувати на зміни у рівні цін, обсягах виробництва й стані платіжного балансу, а також приймати належні управлінські рішення. Грошова маса (грошові запаси) – це загальний обсяг грошових засобів для покупок і платежів, які використовуються для здійснення економічних операцій, а також належать приватним особам, підприємствам і державі. У грошовій масі розрізняють активні гроші, які використовуються як у готівковому, так і в безготівковому обігу, і пасивні (нагромадження, резерви, залишки на рахунках), які потенційно можуть бути використані в угодах. Досліджено, перехід України до ринкових відносин суттєво вплинув на грошові потоки. Зі зростанням обсягів грошових переказів значна частина грошових транзакцій стала безготівковою. Однак значна частина грошей все ще обертається у формі готівки, що ускладнює об'єктивну оцінку купівельної спроможності громадян країни і ефективний вплив на політику грошово-кредитного регулювання ринкової економіки. Грошова система – це організаційна форма грошового обігу в країні, що сформувалася внаслідок історичних процесів і закріплена у національному законодавстві. Її складові елементи містять грошову одиницю, процес емісії готівки й організацію грошового обігу, які є основними інструментами грошового регулювання. Для успішного вирішення завдань грошової політики необхідно мати чітке уявлення про стан грошової системи і грошового обігу, що складно досягти без точного й своєчасного аналізу їхніх параметрів. Грошовий обіг – це переміщення грошей у внутрішньому обороті, що відбувається як у готівковій, так і в безготівковій формі, а також під час обміну товарів, послуг і здійснення різноманітних платежів. Він обслуговує не лише рух товарів і послуг, але й фінансові транзакції, такі як позичкові операції та угоди з цінними паперами. Значна частина грошового обороту у країнах з розвинутою ринковою економікою припадає на фінансові операції, такі як купівля-продаж цінних паперів, податкові платежі тощо. Значна частина цих операцій відбувається через безготівковий спосіб, що пов'язано зі збільшенням обсягів платіжно-розрахункових операцій. Суть статистики грошового обігу і грошей полягає у спостереженні, а також аналізі основних компонентів грошової системи, таких як офіційна грошова одиниця, види й процес емісії грошей, а також форми організації та методи регулювання грошового обігу. Основною метою цієї статистики є надання державним органам грошово-кредитного регулювання достовірної інформації про стан грошової системи для розробки й реалізації відповідної грошово-кредитної політики. Грошово-кредитне регулювання є важливою складовою державних заходів з регулювання ринкової економіки. Ця система містить різні заходи, спрямовані на стабілізацію грошового обороту, валютної системи й покращення роботи кредитної сфери. Змінюючи обсяг грошей та кредитні ресурси, держава може впливати на економіку, коригуючи механізм цього впливу залежно від економічної ситуації. Також розглянуто питання економічної сутності та впливу грошової маси на рівень інфляції.

Ключові слова: COVID-19, статистика, грошовий обіг, інфляція, грошово-кредитне регулювання, платіжні операції.

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Formulation of the problem. For effective management of money circulation processes, it is necessary to have as a basis statistical data on the volume, composition and changes of money circulation, as well as information on the speed of circulation of the money supply, its structure, purchasing power and other relevant parameters.

The COVID-19 pandemic and the full-scale war in Ukraine, starting on February 24, 2022, primarily caused an imbalance in key macroeconomic indicators. The consequences of these events were a sharp increase in the level of inflation, a significant outflow of personal funds, an increase in the level of dollarization and a decrease in the purchasing power of the national currency.

Money plays a key role in various aspects of economic life, from price formation to investment activities. They shape economic policy, regulate markets, and determine indicators such as gross national product and investment. Money helps enterprises to determine the costs and profitability of production, and at the macroeconomic level, it is key for the conscious regulation of the socio-economic life of society.

The statistics of money at the enterprise are also significantly influenced by the accounting system, which allows you to track the movement of funds internally, in particular, control their expenses and income. Automation of accounting with the help of various software products provides an opportunity to analyze the financial activity of the enterprise, forecast its financial situation and make informed decisions for further development, which is detailed in Valeria Melnyk's article "Features of automating the accounting process of a business entity" [6].

In a market economy, money flows and the amount of money in the economic system play a key role in driving the production of goods and services, and are also the main regulator of all economic processes. With the development of financial relations and the expansion of payment methods, the types of money changed rapidly. The theory of money circulation and the methodology of measuring the money supply in the economy, which was considered an important macroeconomic indicator, were temporarily improved.

The concept of money circulation is based on an economic theory that studies the specifics of the functioning of money and its role in ensuring economic processes in both planned and market economies. In the planned system, management is carried out through the regulation of mainly natural quantities. Cash flows reflect the physical volumes of products and services, so there is no possibility of an excess or shortage of money and, accordingly, inflation. In a market economy, money flows acquire an independent meaning, where the demand and supply of money in the market influence decision-making by institutional participants.

Money circulation statistics is an important branch of statistics that studies the movement of money in the economy. Money is one of the key elements of any economic system and affects various aspects of society, from purchasing goods and services to investing and financial stability.

Analysis the last ones research and publications. The issue of organization and control of money circulation was covered in the scientific works of Ukrainian scientists and practitioners, such as: O. D. Vovchak [1], O. M. Kolodiziev [5], V. I. Mishchenko [7], M. I. Savluk [10], Ya. I. Tchaikovsky [11] and other scientists and practitioners. Despite the wide volume of research in this area, the issue of regulating money circulation remains relevant, especially in conditions of significant political and economic uncertainty.

Setting objectives. The purpose of the study there are monetary circulation statistics in providing the bodies of monetary regulation with reliable information about the state of the monetary system for the development and implementation of monetary policy.

Presenting main material research. Monetary circulation is the process of movement of money that occurs within the economic system during its participation in various operations, such as production, exchange, distribution, and consumption of goods and services. This process can include both non-cash settlements and cash transactions. The quantitative aspect of money circulation is expressed in the indicators of the money supply (the total volume of money for purchases and payments, which are used for economic transactions, and also belong to private individuals, enterprises and the state) and the speed of money circulation (the movement of money signs in the process of their functioning as means of circulation and means of payment).

Money is a universal economic form used for accounting, exchange, payments, etc. They are one of the most important areas of the economy. It is more than just a tool to promote economic development. Depending on the form of existence, cash and non-cash funds are distinguished. Cash includes cash in the cash register, and non-cash includes funds in bank accounts and electronic money. Depending on the type of currency, cash in national currency and cash in foreign currency are distinguished. The classification of funds by currency is very important in the management of cash balances, as it allows the management of the company to quickly react to changes in the exchange rate of foreign currencies against the national currency. Cash balances, bank account balances and electronic money are classified according to where they are held. This feature of classification is very important for money reserves. It can also be noted that there are other types of money, such as:

1) commodity money – those that have a value based on the specific commodity they represent (cattle, grain, fur, metal, etc.);

2) metal money – initially these were pieces of metal of various shapes and weights, which later turned into coins – money tokens made of a certain metal (gold, silver, copper or their alloys) of a standard weight and shape;

3) paper money is money that does not have its own value or whose value does not correspond to its face value. They were issued by the state, which assigns them a forced value as legal tender throughout the territory;

4) credit money is a claim on an individual or legal entity, which is a form of specially issued debt and can be used for the purchase of goods or repayment of other debts. They are repayable over a certain period, although they can be used at any time, but carry the risk of non-compliance.

Money circulation is described as the totality of money movement transactions, which can take place in both non-cash and cash form. Non-cash money circulation involves the movement of money through written (or electronic) documents that have clearly established, codified and standardized characteristics.

Non-cash payments are divided into two main categories depending on their form: payments related to trade transactions and payments related to non-commercial transactions. The former contain agreements that concern the exchange of goods and services, while the latter cover relations with the budget, banks, stock exchanges and other entities.

Money is all forms of financial assets that can be used to purchase goods and services. Liquid assets, which are used as money, can be classified depending on the degree of their liquidity into the following categories:

- 1) cash is a completely liquid asset;
- 2) non-cash money (deposits);
- 3) securities;
- 4) world money (international liquid assets).

These different categories differ in their role and importance in monetary circulation, speed of rotation, sources of obtaining information, as well as the forms

and degree of influence on the country's economy. The analysis of these indicators can be seen in Table 1.

Cash money circulation covers the movement of cash during the exchange of goods, provision of services and making various payments. In a developed economy, the demand for cash is mainly determined by the need to pay wages, pensions, scholarships and other social benefits, as well as the current expenditure of the population. At the same time, cash is constantly circulating in the economy.

Issuing cash means introducing it into circulation, which leads to an increase in its total amount in circulation. The decision to issue cash and withdraw it from circulation is made by the Board of Directors of the National Bank of Ukraine. Regulation of the level of the money supply is one of the most important economic tools used by the state. The following indicators are used to estimate the amount of available money supply:

- 1) cash outside the banking system;
- 2) cash in bank cash registers;
- 3) all cash in circulation (outside the banking system and in bank cash registers).

With the development of economic ties and the banking system, the use of cash as a means of payment is gradually decreasing. In the modern world, cashless payments have become the main method of conducting transactions – this is the transfer of funds from the payer's account to the recipient's account without the use of cash. Settlements are made through banks, provided that the payer has sufficient funds in his account and agrees to the payment, which is made after receiving the goods or services.

A monetary aggregate is a specific grouping of liquid assets defined by legislation. According to the legislation of Ukraine, 4 monetary aggregates are provided for characterizing the value of the NBU's money supply: M0, M1, M2, M3.

The monetary aggregate M0 takes into account the amount of cash in circulation. The smaller the share of M0 in the gross money supply, the more developed and efficient the national monetary system is considered

Table 1

Dynamics of money circulation indicators by “forms of money” during the period of the COVID-19 pandemic and martial law

Indexes	2020	2021	The first half of 2022
Cash and cash equivalents, million hryvnias	516085.00	581,011.00	643,097.00
Non-cash money supply, million hryvnias	1 333929.00	1,490,347.00	1,610,562.00
Monetary base, million hryvnias	595,986.00	662,499.00	726,893.00
Securities (bonds of domestic state loans), million UAH	991618.81	1 054430.45	1 215863.65
Gold and currency reserves, million dollars. USA	29,132.89	30,940.95	22,802.15
M72. Scientific research and development	19541.00	35348.00	55.30
Money multiplier, times		40226	27.90
normative	15.38	15.38	15.38
actual	3.10	3.13	3.09

Source: created by the author based on [2]

to be. The increase in the share of cash in circulation is usually caused by the attempts of many business entities to make payments in cash to avoid taxation, as well as the insufficient level of trust of legal entities and individuals in commercial banks and other financial and credit institutions. The monetary aggregate M1 covers M0 plus the sums of money in current accounts and deposits. Monetary aggregate M2 includes M1 plus time deposits, funds on capital investment accounts of enterprises and organizations, foreign currency savings. The monetary aggregate M3 includes M2 plus funds that clients receive from bank branches for operations and securities that are debts of banks (fig. 1).

An increase in cash in the total money supply complicates the process of calculations in the national economy, leads to a decrease in cash flows to the current accounts of enterprises and worsens liquidity, which leads to a weakening of the credit potential of commercial banks. Modern financial systems contain other liquid assets, such as government securities, which are a form of government debt. They are considered reliable, have tax benefits and can be exchanged for money.

The aggregate “money” includes money outside banks and demand deposits, which are all available funds in the country’s economy that can be used as a means of payment. This aggregate is similar to the monetary aggregate M1 in its composition.

The “quasi-money” aggregate covers liquid deposits in the monetary system that are not directly used as a means of payment and usually have less activity in circulation than the “money” aggregate. This aggregate includes time and savings deposits, as well as deposits in foreign currency, which are listed in the balance sheet of the National Bank of Ukraine and commercial banks.

The “broad money” aggregate consists of the “money” and “quasi-money” aggregates, but its specialty is deposits in foreign currency. The peculiarity of this aggregate, compared to M2, is that it includes deposits in foreign currency, and balance data is used to calculate the cash component, and not operational data, as in the case of M2.

The money that is in the banking system generates cash flows and has a direct impact on the volume and structure of the country’s money supply, which is reflected in various monetary aggregates. The evaluation of indicators of monetary aggregates is the third means of analyzing monetary circulation in Ukraine. All the above indicators are presented in Table 2.

In the period between 2014 and 2017, political and economic difficulties arose in Ukraine, which led to imbalances in macroeconomic indicators. The reform of the banking sector during this period made it possible to clean it, reduce inflation and stabilize the national currency. However, the onset of the COVID-19 pandemic complicated the economic situation. It affected almost all enterprises in Ukraine, showing how vulnerable both business owners and employees can be. This was manifested in a decrease in the volume of orders, a violation of procurement and delivery terms, as well as in the paralysis of sales channels. However, it is impossible not to note the fact that the Ukrainian banking sector showed high resilience during the COVID-19 pandemic, in the period 2020–2021, and demonstrated significant profitability. With the beginning of a full-scale war, the economic situation became even more difficult. Changes in macroeconomic indicators during the COVID-19 pandemic and in war conditions are shown in Table 3.



Fig. 1. The structure of monetary aggregates in the money supply, %

Source: created by the author based on [5]

Table 2

Dynamics of money circulation indicators by money aggregates during the period of the COVID-19 pandemic and martial law

Indexes	2020		2021		The first half of 2022	
	million hryvnias	%	million hryvnias	%	million hryvnias	%
Monetary aggregate M0	516085	27.9	581011	28.0	643097	28.5
Monetary aggregate M1	1050051	56.8	1281238	61.9	1377726	61.2
Monetary aggregate M2	1847363	99.9	2069606	99.9	2250937	99.9
Monetary aggregate M3	1850007	100	2071358	100	2252659	100

Source: compiled from materials [10]

Table 3

Dynamics of economic indicators of monetary circulation of Ukraine during the period of pandemic and wartime

Indexes	2020	2021	The first half of 2022
Gross domestic product, million UAH	4194102	5459574	-40 % preliminary assessment
Consumer price index, %	105.0	110.0	118.7
Core inflation, %	104.5	107.9	112.7
Cash flow, million hryvnias	1850014	2071358	2252659
Speed of money circulation, times	2,3	2.6	–
Real money supply, million hryvnias	1757513.3	1864222.2	1831411,767
Monetization ratio, %	44.0	37.9	–
Dollarization coefficient, %	26.7	22.9	26.56
Exchange rate, UAH	26.96	27,29	31.85

Source: created by the author based on [2]

Conclusions from the conducted research.

The study of the influence of money circulation on the stimulation and maintenance of economic growth has considerable practical weight. Permanence and stability of money circulation determine not only the state of the money market, but also the nature of reproductive processes in the economy. The research that was conducted allows us to conclude that among the main problems limiting the stimulating effect of money circulation on economic development, the following can be distinguished: imbalance in financial markets and their low liquidity; structural imperfection and unbalanced development of the financial sector; deficiencies in the mechanisms of functioning and low efficiency of using the channels of the transmission mechanism of monetary policy; gradual decrease in the credit activity of banks.

The full-scale war in Ukraine led to deviations in macroeconomic proportions, which had a negative impact on economic development and the banking system, which, in turn, affected the nature and movement of money circulation. This process led to a significant increase in the level of inflation, uncertainty in monetary guidelines, which contributed to the destruction of market mechanisms, a drop in production and the threat of the collapse of the entire socio-economic system. Modern challenges in the domestic economy cannot be overcome only by increasing the money supply. It is important to focus on the direction of the development of the financial sector of the economy, in particular on the

way to economic recovery and achieving high growth rates, it is necessary to take significant measures to replenish financial resources. Among the possible actions that can contribute to the improvement of the situation in the monetary policy of Ukraine in the near future, the following can be indicated: stimulate the economic activity of both individuals and legal entities; reduce the tax burden; ensure price stability; use a balanced monetary policy to constantly control and reduce the level of inflation.

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