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# Central Bank Digital Currency as a New Means of Payment: An Experimental Approach

Jana Anjali Magin\*      Ulrike Neyer†      Alexandra Stevens‡

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## Abstract

Central banks around the world are considering the introduction of a Central Bank Digital Currency (CBDC) as a new means of payment. One of the reasons for introducing a CBDC is a change in payment behavior towards an increasing use of electronic forms of payment. This paper investigates the introduction of a CBDC as a new means of payment. We conduct a controlled laboratory experiment to examine how different design features affect the demand for CBDC over cash and deposits. In particular, we focus on anonymity. To do so, we introduce two versions of CBDC that differ in the degree of anonymity they provide. We assess how the introduction of these two versions of CBDC affects the demand for cash and deposits. In a further step, we examine which design features are relevant in shaping the demand for CBDC. Cash, deposits and CBDC differ in three properties, which are acceptance as a medium of exchange, anonymity, and transaction efficiency. We vary the degree of anonymity and we manipulate adoption costs to identify how much anonymity and adoption costs matter.

*JEL classification:* E41, E42, C92.

*Keywords:* Payment methods, experimental economics, central bank digital currencies, anonymity.

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# 1 Introduction

Payment behavior has changed in recent years, with an increasing use of electronic forms of payments and a decreasing use of cash. The increasing use of electronic forms of payments is one of the reasons why central banks worldwide are considering the introduction of a Central Bank Digital Currency (CBDC) as a new means of payment. A CBDC can be either token-based or account-based. A token-based CBDC is similar to cash as it allows for anonymous payments through peer-to-peer transactions, while an account-based CBDC is more similar to deposits.

Against this background, this paper develops a framework for studying the adoption of a CBDC as a new means of payment. To do so, we conduct a controlled laboratory experiment in which the design features of CBDC resemble those of either cash (token-based) or deposits (account-based). We address two research questions. First, how does the introduction of a token-based or account-based CBDC affect the demand for cash and deposits? Second, which design features are relevant in shaping the demand for CBDC over cash and deposits?

The goods market in the experiment consists of sellers and buyers. We focus on the adoption of CBDC as a new means of payment on the buyer's side. In this context, cash, deposits and CBDC differ in three properties, namely acceptance as a medium of exchange, anonymity, and transaction efficiency. Regarding transaction efficiency, we distinguish between two forms: (i) buyers incur transaction costs with each transaction and (ii) buyers incur adoption costs once a new means of payment is adopted. CBDC is a new means of payment in the sense that its adoption requires a one-time fee and is dependent on network adoption effects, while cash and deposits are established means of payment. In the experiment, buyers are endowed with experimental money and decide how to allocate it between cash, deposits and CBDC according to their preferences for acceptance, anonymity, and transaction efficiency. Buyers meet computerized sellers that trade goods. Transactions will be successful only if the buyer's chosen means of payment is accepted as a medium of exchange by the seller. Two versions of CBDC exist, a token-based CBDC (anonymous means of payment) and an account-based CBDC (non-anonymous means of payment), which differ only in the dimension of anonymity. This is reflected in the experimental design with two different treatments, which allows us to isolate the degree of anonymity. In addition, we vary adoption costs to identify how much these costs matter.

The payoff of the participants depends on the number of successful transactions, minus the transaction and/or adoption costs.

We contribute to the following strands of the literature. First, this paper relates to the literature on experiments on means of payments. Relevant examples include Camera et al. (2016), Borgonovo et al. (2021), and Arifovic et al. (2023). We contribute to this strand of the literature by introducing CBDC as a new means of payment and by investigating optimal design features of CBDC. The most closely related work is that of Arifovic et al. (2023), who assess the the impact of the introduction of a new means of payment. We differ from their approach by specifically considering a CBDC and different properties of the means of payment. Second, our paper relates to the literature on CBDC demand as in Li (2023). We contribute to this strand of the literature by analyzing substitution effects between different means of payment. Third, we contribute to the literature on anonymity and privacy in economic experiments. Relevant examples are Gary and Gneezy (2008), Benndorf and Normann (2014), Winking (2014), Thielmann et al. (2016), and Möser and Böhme (2017).

The paper is organized as follows. Section 2 presents some notable fundamentals. Section 3 describes the experimental design. Section 4 analyzes the results. Section 5 concludes.

## **2 CBDC as a New Means of Payment**

In general, a CBDC is a digital form of money issued by a central bank. As such, it represents a direct claim against this central bank and allows for electronic payments. It differs from existing forms of central bank money in two ways. First, a CBDC differs from cash in that it allows for electronic payments. Second, a CBDC differs from existing forms of electronic central bank money, such as settlement account balances and reserves, as a Retail-CBDC is universally accessible (Bank for International Settlements, 2018). Moreover, a CBDC also differs from other forms of electronic money, such as deposits, which are accessible to a broader public, as a CBDC is central bank money, i.e., public money. Figure 1 shows a variation of the money flower by Bech and Garratt (2017), which provides a taxonomy of CBDC. The CBDC is placed in the centre of the Venn diagram. Unlike cash, CBDC is an electronic form of money. The fact that a CBDC is always issued by a central bank distinguishes it from other forms of widely available electronic forms of money, such as bank deposits and private crypto tokens. According to this concept,

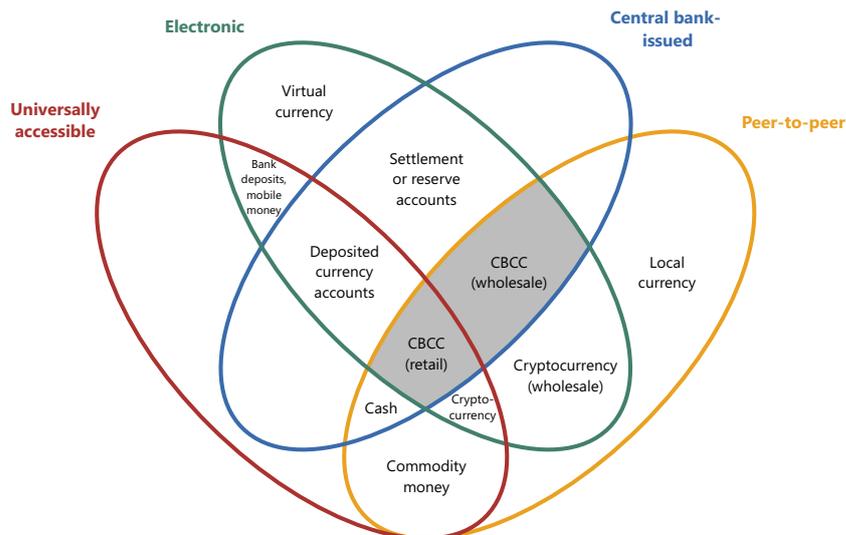


Figure 1: Money Flower. Source: Bank for International Settlements, 2018

three main forms of CBDC exist, which differ in the degree of accessibility and whether it is account-based or token-based. The first form of CBDC is an account-based version, which is universally accessible. The second is a token-based version, which is also intended for the general public. The third form is a token-based CBDC, which is designated for wholesale use, i.e., only for financial institutions or selected firms.

### 3 Experimental Design

The experiment is about the introduction of a new means of payment, CBDC, and the effects on existing means of payment, cash and deposits. This section describes the experimental design.

#### 3.1 General Setup

The experiment consists of 10 market rounds. Participants play the role of buyers. The sellers are played by a computer. In each market round, buyers and sellers interact to conduct transactions, i.e., to purchase goods. Buyers receive 10 units of experimental money (EM) at the beginning of each market round, which is then "converted" into means of payment to purchase goods. Buyers decide which means of payment to use and how to divide the 10 units of EM between the different means of payment. There are three means of payment available: Cash, deposits and CBDC. To avoid framing effects, we label cash as "means of payment 1", deposits as "means of payment 2" and CBDC as "means of payment 3". Only with these means of payment can buyers purchase goods. The price of

a good is 1 EM, so buyers can buy up to 10 goods in each market round. Each transaction incurs transaction costs. For each successfully completed transaction, the buyer receives experimental income, hereafter referred to as income. This income is equal to the price of the good (1 EM) minus the transaction costs.

### 3.2 Means of Payment

We describe the three means of payment in terms of three properties. The descriptions of the means of payment are summarized in Table 1.

Means of Payment				
Property	Means of Payment 1	Means of Payment 2	Means of Payment 3 (green)	Means of Payment (blue)
Acceptance	100%	81%	0 or 100%	0 or 100%
Anonymity	Yes	No	Yes	No
Transaction costs	0.60 EM	0.38 EM	0.10 EM	0.10 EM
Adoption costs	0.00 EM	0.00 EM	0.50 EM	0.50 EM

Table 1: Summary Means of Payment

The first property is acceptance as a medium of exchange. We distinguish between central bank money and commercial bank money. Central bank money is issued by a public entity and a legal tender. This implies that central bank money is accepted as a medium of exchange in any transaction. Commercial bank money, however, is issued by a private entity and is not legal tender. This means that commercial bank money is not accepted as a medium of exchange in every transaction. The second property is anonymity, which is the degree to which information about a payment transaction is disclosed and stored. The third property is transaction efficiency. We distinguish between transaction costs and adoption costs. Buyers incur transaction costs with every successful transaction and fixed adoption costs once a new means of payment is adopted.

In this framework, cash, deposits and CBDC are described as follows. Cash is central bank money and a legal tender, i.e., sellers must accept cash as a medium of exchange in any transaction. The acceptance rate of cash is therefore 100%. In addition, transactions conducted with cash are anonymous in the sense that information about the payment transaction is disclosed only to the parties involved. In terms of transaction efficiency, cash has the highest transaction costs. Specifically, each successful transaction incurs transaction costs of 0.6. These transaction costs reflect the time costs at the checkout

to pay for the purchase, the cost of withdrawing money, or storage costs. Cash is an established means of payment, i.e., buyers do not bear the fixed adoption costs.

Deposits are commercial bank money and not legal tender. This means that sellers do not have to accept deposits as a medium of exchange. Instead, the acceptance rate is 81%. According to the European Central Bank (2022), it was possible to pay cashless in 81% of the transactions at the point of sale in the euro area in 2022. Moreover, transactions made with deposits are not anonymous, as information about the payment transaction is recorded and disclosed to the issuer. In terms of transaction efficiency, deposits incur lower transaction costs than cash. Transaction costs amount to 0.38. Similar to cash, deposits are an established means of payment, i.e., buyers do not bear the fixed adoption costs.

In the experiment, there are two versions of CBDC, a token-based CBDC and an account-based CBDC. To avoid framing effects, we label them "green" (token-based, anonymous) and "blue" (account-based, non-anonymous). Both versions of CBDC are central bank money and a legal tender. This means that once token-based or account-based CBDC is adopted as a new means of payment, sellers must accept CBDC as a medium of exchange in any transaction. The acceptance rate of CBDC is therefore 100% dependent on whether CBDC is adopted as a new means of payment. The decision of sellers to adopt CBDC as a medium of exchange depends on network adoption effects. Specifically, sellers will introduce and accept CBDC as a medium of exchange if the share of buyers using CBDC is at least 50%. Otherwise, sellers will not find it beneficial to introduce CBDC and the acceptance rate is 0%. In terms of transaction efficiency, token-based and account-based CBDC have lower transaction costs than cash and deposits. Specifically, buyers incur transaction costs of 0.1 for each successful transaction. This is the motivation for introducing CBDC as a new means of payment, namely that it facilitates transactions and thus reduces transaction costs. However, CBDC is a new means of payment in the sense that buyers incur a fixed adoption fee of 0.4 or 0.5. These adoption costs reflect the cost of searching for information, opening a bank account, or installing an app. Token-based and account-based CBDCs differ only in the dimension of anonymity. A token-based CBDC is similar to cash as it allows for anonymous payments through peer-to-peer transactions, while an account-based CBDC more closely resembles deposits as it does not allow for anonymous payments.

### 3.3 Experimental Economy

The experimental economy is shown in Figure 2.

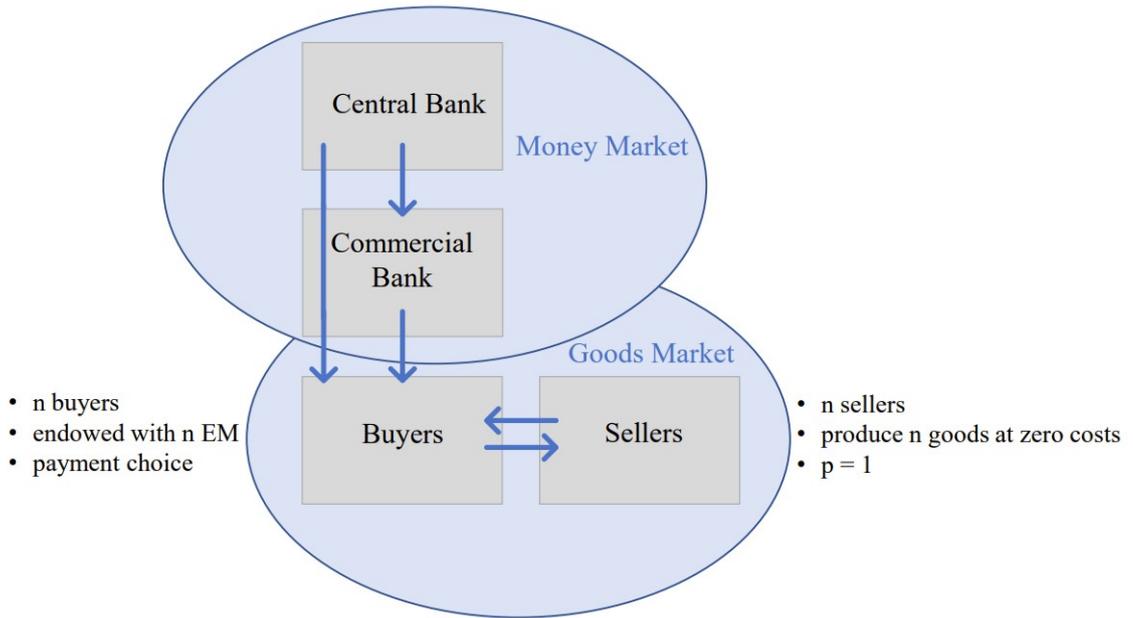


Figure 2: Experimental Economy

The economy consists of two markets, the money market and the goods market. The money market consists of a central bank and a commercial bank. The commercial bank provides liquidity to buyers in the form of commercial bank money or deposits. The central bank provides liquidity to buyers in the form of central bank money, namely cash and CBDC. The goods market in the experiment consists of  $n$  sellers and  $n$  buyers. Each seller produces  $n$  goods at zero cost and the price for one good is fixed at 1 EM. Each buyer is endowed with  $n$  units of experimental money. Buyers then decide how to allocate the experimental money between cash, deposits and CBDC according to their preferences for acceptance, anonymity, and transaction efficiency. Following the payment choice, each buyer meets each seller to purchase one unit of each good, using cash, deposits, and CBDC as a medium of exchange. However, the transaction will only be successful if the buyer's chosen means of payment is accepted by the seller as a medium of exchange. The focus of this experiment is on the acceptance of CBDC as a new means of payment on the buyer's side, so the sellers are computerized and buyers are played by participants.

### 3.4 Experimental Procedure

The experimental procedure is summarized in Figure 3.

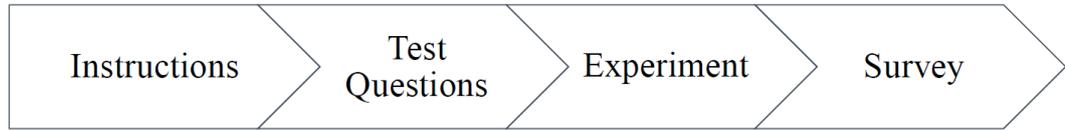


Figure 3: Experimental Procedure

Before the experiment begins, the experimental instructions<sup>1</sup> are distributed. The instructions provide detailed information about the properties of the means of payment, the experimental economy and setup, and the payoff function. For illustration purposes, participants are also shown Table 1. After reading the instructions, participants are given several test questions about the three means of payments and the payoff consequences of different actions. This ensures that all subjects have understood the procedures. This is followed by a test round, which is not payoff relevant. The experiment starts after all subjects have answered the test questions correctly. Subjects are randomly and equally divided into treatments, as described in Table 4. Participants are informed of their treatment assignment. The experiment then begins with a test round. The experiment ends when the ten market rounds have been completed. All market rounds are relevant for payoff.

After the experiment, subjects are asked to answer a survey<sup>2</sup> to elicit a number of control variables. These include measures of financial literacy and sociodemographics. To control for framing effects, we ask participants questions about CBDC and what they think the experiment is about (neutral framing test). We also include questions about payment behavior and trust in the banking sector. In addition, participants play a lottery-choice task to elicit their risk preferences regarding payment transactions. Participants are also asked about their preferences for anonymous payments.

### 3.5 Market Rounds

The experimental setup is summarized in 2. The experiment consists of 10 market rounds to allow for learning effects. In each market, buyers play a two-stage game.

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<sup>1</sup>The experimental instructions are available upon request from the corresponding author.

<sup>2</sup>The survey is available upon request from the corresponding author.

Market 1	Stage 1: Payment choice → Buyers allocate EM between the three MOPs → Buyers decide on adopting MOP 3 at a one-time fee
	Belief elicitation → Buyers state beliefs about the behavior of other buyers
	Stage 2: Trading → Each buyer meets one seller to trade
...	...
Market 10	Stage 1: Payment choice
	Belief elicitation
	Stage 2: Trading

Table 2: Experimental Setup

In the first stage, buyers do a payment choice and decide how to allocate  $n$  amounts of experimental money between cash, deposits and CBDC according to their preferences. We keep the framing neutral, labeling cash as "means of payment 1", deposits as "means of payment 2" and CBDC as "means of payment 3". This allows us to better control for the information environment and avoids that beliefs and payment preferences outside the laboratory influence the results. The means of payment are described using three properties, which are acceptance as a medium of exchange, anonymity and transaction efficiency. The payment decision is therefore based on buyers' preferences for these attributes. Buyers also decide whether to pay the one-time fee for adopting CBDC as a new means of payment.

Before the second stage begins, buyers are asked to state their beliefs about the behavior of other buyers. In particular, buyers forecast the amount of experimental money other buyers will allocate to means of payment 3 (CBDC) and the probability that means of payment 3 is adopted by sellers as a new means of payment. These predictions provide information on whether buyers use CBDC because they believe others will use it, thus identifying network effects. They also provide information about negative willingness to pay, i.e., when buyers indicate that they believe CBDC will be accepted by sellers as a means of exchange, but they do not use it because of their preferences. After belief elicitation, the second stage begins. In the second stage, buyers meet computerized sellers to exchange goods. Transactions is successful only if the buyer's chosen means of payment is accepted by the seller as a medium of exchange.

The buyer's payoff depends on the number of successful transactions minus the transaction and/or acceptance costs. The income per market round is as follows: Number of successful

transactions multiplied by the price of the good minus transaction costs minus adoption costs if means of payment 3 was selected and accepted. The income of a buyer per market round can therefore be as follows.

Case 1 is shown in Tables 3 and 4. The buyer pays EM 0.40 (baseline treatment) once in the market round for the use of means of payment 3 and uses all three means of payment (MOPs).

- **The buyer accepts MOP 3.**

<i>MOP 3</i> accepted	
<i>MOP 2</i> accepted	Number of transactions <i>MOP 1</i> x (1 - 0.60) + number of transactions <i>MOP 2</i> x (1 - 0.38) + number of transactions <i>MOP 3</i> x (1 - 0.10) - 0.40
<i>MOP 2</i> <b>not</b> accepted	Number of transactions <i>MOP 1</i> x (1 - 0.60) + number of transactions <i>MOP 3</i> x (1 - 0.10) - 0.40

Table 3: Income of a Buyer in a Market Round Using Means of Payment 3 (Accepted by the Seller).

- **The buyer does not accept MOP 3.**

<i>MOP 3</i> <b>not</b> accepted	
<i>MOP 2</i> accepted	Number of transactions <i>MOP 1</i> x (1 - 0.60) + number of transactions <i>MOP 2</i> x (1 - 0.38)
<i>MOP 2</i> <b>not</b> accepted	Number of transactions <i>MOP 1</i> x (1 - 0.60)

Table 4: Income of a Buyer in a Market Round Using Means of Payment 3 (Not Accepted by the Seller).

Case 2 is shown in Table 5. The buyer does not pay 0.40 EM for the use of means of payment 3 and can only use means of payment 1 and means of payment 2.

<i>MOP 3</i> <b>not</b> used	
<i>MOP 2</i> accepted	Number of transactions <i>MOP 1</i> x (1 - 0.60) + number of transactions <i>MOP 2</i> x (1 - 0.38)
<i>MOP 2</i> <b>not</b> accepted	Number of transactions <i>MOP 1</i> x (1 - 0.60)

Table 5: Income of a Buyer in a Market Round Without Using Means of Payment 3.

### 3.6 Treatments

The main contribution is to study the adoption of two different versions of CBDC, which differ in the degree of anonymity granted, and to identify the design features that are relevant in shaping the demand for CBDC. To do so, we use a 2x2 experimental design. Two

aspects vary across the experimental treatments. First, the CBDC design option (token-based, anonymous versus account-based, non-anonymous) and second, the one-time fee for adopting CBDC as a new means of payment on the buyer side (0.4 or 0.5). The CBDC design option is within-subjects, so subjects play both treatments, while the fixed adoption costs are between-subjects, so these roles are fixed over the duration of the experiment. This results in four randomized treatments, which are summarized in Tables 6 and 7. Subjects assigned to the *TOKEN\_ACCOUNT\_0.4* treatment first play the *TOKEN* treatment for 5 market rounds, and then the *ACCOUNT* treatment for 5 markets. In this treatment, the anonymity of CBDC changes from YES to NO, while everything else remains constant. Moreover, the cost for introducing CBDC as a new means of payment is 0.4 (baseline). Subjects assigned to the *ACCOUNT\_TOKEN\_0.4* treatment also face fixed adoption cost of 0.4, but they play the *ACCOUNT* treatment first and then the *TOKEN* treatment. In this treatment, the anonymity of CBDC changes from NO to YES, while everything else remains constant. The same applies to the treatments *TOKEN\_ACCOUNT\_0.5* and *ACCOUNT\_TOKEN\_0.5* treatments, except that the adoption cost is 0.5.

CBDC design options			
One-time fee for adoption		"green"	"blue"
	0.4	<i>TOKEN_0.4</i>	<i>ACCOUNT_0.4</i>
	0.5	<i>TOKEN_0.5</i>	<i>ACCOUNT_0.5</i>

Table 6: 2x2 Treatment Design

	Markets 1-5	Markets 6-10
<i>TOKEN_ACCOUNT_0.4</i>	<i>TOKEN_0.4</i>	<i>ACCOUNT_0.4</i>
<i>ACCOUNT_TOKEN_0.4</i>	<i>ACCOUNT_0.4</i>	<i>TOKEN_0.4</i>
<i>TOKEN_ACCOUNT_0.5</i>	<i>TOKEN_0.5</i>	<i>ACCOUNT_0.5</i>
<i>ACCOUNT_TOKEN_0.5</i>	<i>ACCOUNT_0.5</i>	<i>TOKEN_0.5</i>

Table 7: Treatment Sequence

The idea of this treatment design is that we isolate and vary the degree of anonymity of CBDC, while holding everything else constant. This allows to identify the extent to which the preference for anonymous payments is relevant in shaping the demand for CBDC over cash and deposits. Specifically, any difference between the *TOKEN* and the *ACCOUNT*

treatment is solely attributed to the anonymity dimension of CBDC. In addition, we vary adoption costs to identify how much adoption costs matter.

To identify subjects' preferences for anonymous payments, anonymity should have real consequences. Thus, we publish information on payment transactions of subjects using non-anonymous means of payments, i.e., information on transactions conducted with deposits and account-based CBDC. Participants' decisions remain anonymous throughout the experiment. However, anonymous and non-anonymous means of payment can be used to purchase goods in the experiment. Participants decide which means of payment to use in the experiment. If participants only use anonymous means of payment in the experiment, the amount of their payment today will not be made visible at the end of the experiment. If participants use non-anonymous means of payment during the experiment, the amount of their payout today will be made visible to all other participants within their group in the form of a table at the end of the experiment. The table contains their place number and the amount of the payoff achieved with non-anonymous means of payment. Names and other personal data will not be made visible. A somewhat related approach can be found in Schram and Charness (2015). However, we deviate from this approach by not publishing other decisions made during the experiment or names and other personal data.

### **3.7 Hypotheses**

The hypotheses are as follows.

1. The demand for means of payment 3 (CBDC) is higher in the “green” treatment (anonymous) than in the “blue” treatment (not anonymous), as anonymity is relevant in shaping the demand for CBDC.
2. Risk averse subjects have a higher demand for means of payment 1 (cash) than for means of payment 2 (deposits) as well as for means of payment 3 (CBDC).
3. With low adoption costs, means of payment 3 replaces means of payment 2 and means of payment 1.
4. The probability that means of payment 3 will be adopted increases over market rounds, especially when adoption costs are low.

5. The adoption of means of payment 3 increases sharply after round 1, the slope then flattens.
6. Network effects matter, i.e., subjects will adopt means of payment 3 as a new means of payment if they expect that other subjects will also adopt means of payment 3. This is especially the case when adoption costs are low.

### 3.8 Experimental Sessions

The experiment was conducted from December 2024 to February 2025 at the DICE Lab at the University of Düsseldorf. The experiment was programmed with the software oTree (Chen et al., 2016). Subjects were recruited through the online subject database Hroot (Bock et al., 2014). Ideally, subjects should have different academic backgrounds. In the recruitment email, subjects were informed that more participants would be invited than needed. If a participant arrived on time, but their participation was no longer needed, they received the standard show-up fee of 6 euro and were invited to participate in a later session. In total, we had 180 participants. For each adoption cost treatment, we conducted four sessions with 20 subjects in each session. On average, each session lasted 60 minutes. Upon arrival at the DICE Lab, participants were greeted and directed to individual computer booths. We used a randomizer to assign the computer booths. Once all participants were seated, they were given sufficient time to read the written instructions. In addition, they had the opportunity to ask the experimenter questions. Then, the actual experiment began with test questions and a test round. Regarding the payments, all participants received a show-up fee of 6 euros and the average payoff is around 14 euro. The predictions and the surveys were not incentivized except for the lottery-choice task. The experiment is preregistered.

## 4 Preliminary Experimental Results

Figure 4 shows the average choice of buyers and acceptance of sellers of means of payment 3 (CBDC) across all sessions by market round. On average over all sessions, CBDC was accepted as a payment method, i.e. at least 50% of buyers chose means of payment 3 in that market round. The number of EM allocated to CBDC increases on average over the course of the market rounds.

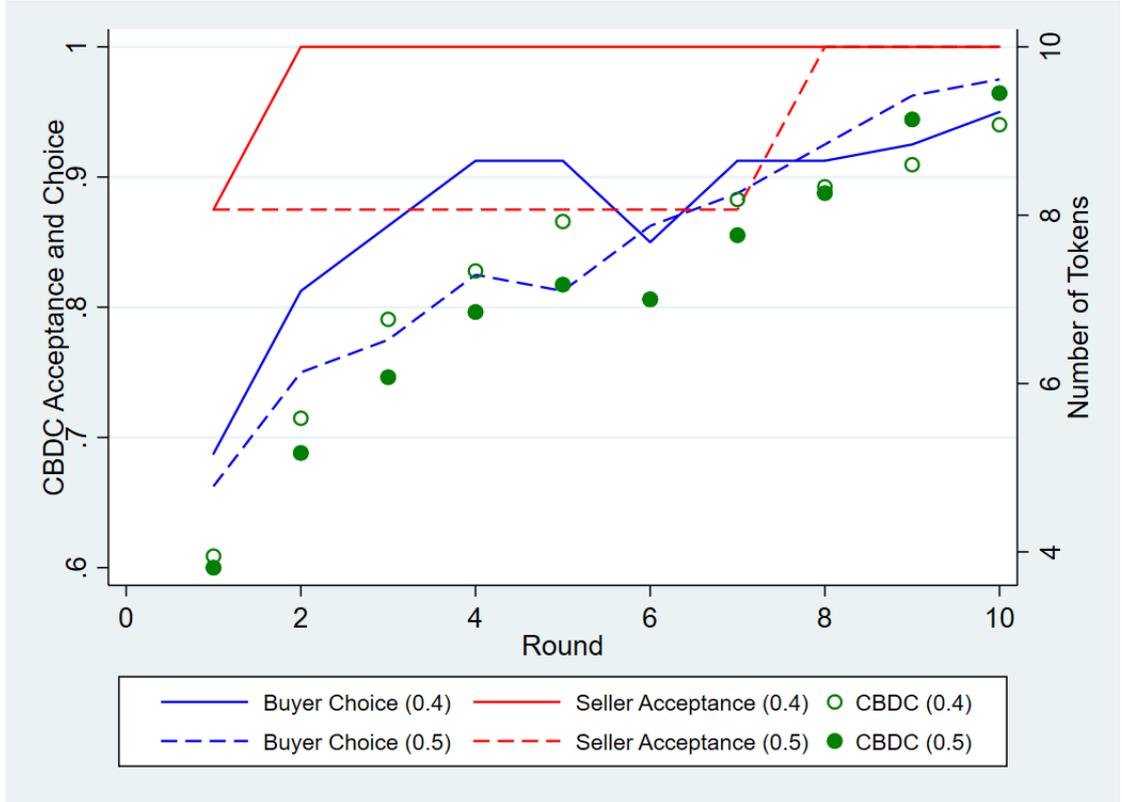


Figure 4: Average Choice and Acceptance of Means of Payment 3 Across All Sessions by Market Round

On average, more buyers choose CBDC in treatment 0.4 than in treatment 0.5. Similarly, buyers in treatment 0.4 allocate more EM to CBDC than buyers in treatment 0.5. On average, the acceptance of CBDC also differs at the seller level. While CBDC was accepted in all sessions starting from market round 2 in treatment 0.4, this was only the case starting from market round 8 in treatment. We will test for significance.

Figure 5 shows the average number of EM allocated to the three means of payments across all sessions by market round. The number of EM allocated to means of payment 3 (CBDC) increases on average across all sessions over the course of the market rounds. In contrast, the number of EM distributed to means of payment 1 (cash) and means of payment 2 (deposits) decreases over the course of the market rounds. This applies to both adoption cost treatments. The increase in means of payment 3 (CBDC) is mainly due to a switch from means of payment 2 (deposits) to means of payment 3 (CBDC).

Figure 6 shows the number of transactions conducted with each means of payment over the market rounds, on average across all sessions. The same applies to the number of transactions as to the distribution of EM among the means of payment. On average across all sessions, more transactions are carried out with means of payment 3 (CBDC)

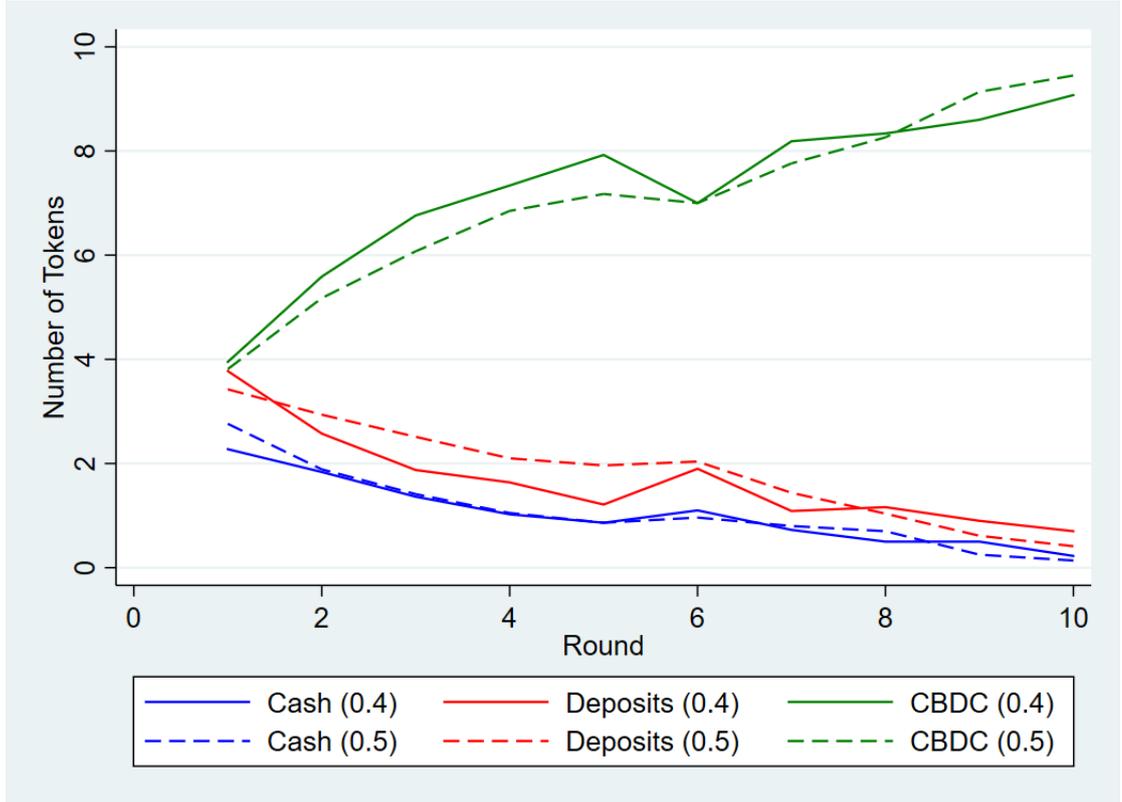


Figure 5: Average Allocation of EM to the Means of Payment Across All Sessions by Market Round

over the course of the market rounds, while the number of transactions carried out with means of payment 1 (cash) or means of payment 2 (deposits) decreases in comparison.

To test the hypotheses, we will use the following variables as outcome variables: Number of tokens allocated to each means of payment, number of transactions conducted with each means of payment, buyers' choice of means of payment (binary), sellers' acceptance of means of payment 3 (binary). In addition, we will consider the belief about the buyer's choice of means of payment 3 in the next round, the belief about means of payment 3 in the next round, and the belief about the seller's acceptance of means of payment 3. We will use nonparametric tests to test whether there are significant differences between treatments on the variables of interest. In addition, probit regressions will allow us to further explore this relationship with additional control variables at the individual level.

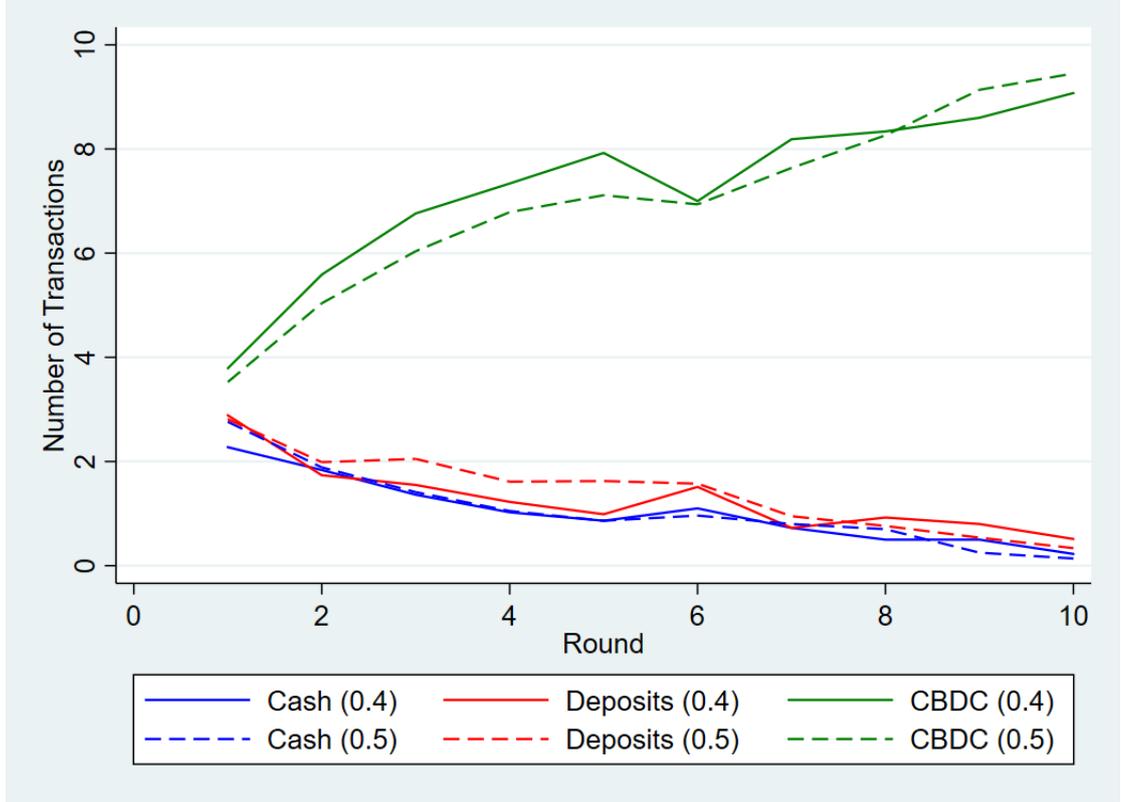


Figure 6: Average Number of Transactions Conducted with Each Means of Payment Across All Sessions by Market Round

## 5 Conclusion

In recent years, payment habits have changed. The use of cash has declined and consumers increasingly prefer to use electronic forms of payment. In addition, central banks worldwide are considering the introduction of CBDCs as a digital form of means of payment. This paper develops a framework for investigating the introduction of a CBDC as a new means of payment. We conduct a laboratory experiment, where the design features of the CBDC are similar to those of either cash (token-based version, anonymous) or deposits (account-based version, non-anonymous). In the experiment, we focus on the adoption of CBDC as a new means of payment on the buyer’s side. In this framework, cash, deposits and CBDC differ in three properties, namely acceptance as a medium of exchange, anonymity, and transaction efficiency. Buyers are endowed with experimental money and decide how to allocate it among cash, deposits and CBDC according to their preferences for acceptance, anonymity, and transaction efficiency. Buyers meet computerized sellers that trade goods. Trading will only be successful if the means of payment chosen by the buyer is accepted as a medium of exchange by the seller. We use two versions of CBDC, a token-based CBDC and an account-based CBDC. The two versions differ only in the

dimension of anonymity. This is reflected in the experimental design with two different treatments, which allows us to isolate the degree of anonymity. In addition, we manipulate adoption costs to determine how much adoption costs matter. Preliminary results suggest that adoption costs matter and that the adoption rate of CBDC is crucial.

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